



STIC Search Report

EIC 1700

STIC Database Tracking Number: 148623

TO: Elizabeth Mulvaney
Location: REM 10B77
Art Unit : 1774
April 4, 2005

Case Serial Number: 10/826254

From: Usha Shrestha
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



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Search requests relating to **published applications, patent families, and litigation** may be submitted by filling out this form and clicking on "Send."

For all other search requests, fill out the form, print, and submit the printout with any attachments to the STIC facility serving your Technology Center.

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☐ TC 1600 ☒ TC 1700 ☐ TC 2100 ☐ TC 2600 ☐ TC 2800
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SCIENTIFIC REFERENCE BR
Sci & Tech Inf - Ctr

MAR 23 RECD

Enter your Contact Information below:

Pat. & T.M. Office

Name: Employee Number: Phone: Art Unit or Office: Building & Room Number: Enter the case serial number (Required):

If not related to a patent application, please enter NA here.

Class / Subclass(es) Earliest Priority Filing Date:

Format preferred for results:

☐ Paper ☐ Diskette ☒ E-mail

Provide detailed information on your search topic:

- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meanings.
- *For Chemical Structure Searches Only*
Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers
- *For Sequence Searches Only*
Include all pertinent information (parent, child, divisional, or issued patent numbers) along with

the appropriate serial number.

- ***For Foreign Patent Family Searches Only***
Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings, or chemical structures** to your EIC or branch library.

Enter your Search Topic Information below:

The compounds of claims 1-5 and as a recording material for an optical storage medium (disk, disc, dvd).

Special Instructions and Other Comments:

(For fastest service, let us know the best times to contact you, in case the searcher needs further clarification on your search.)

Press ALT + F, then P to print this screen for your own information.

SEND

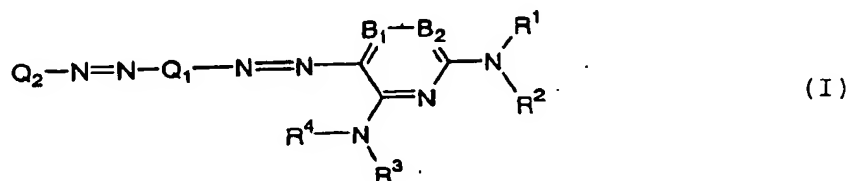
RESET

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Last Modified: 08/20/2004 09:04:50

What is claimed is:

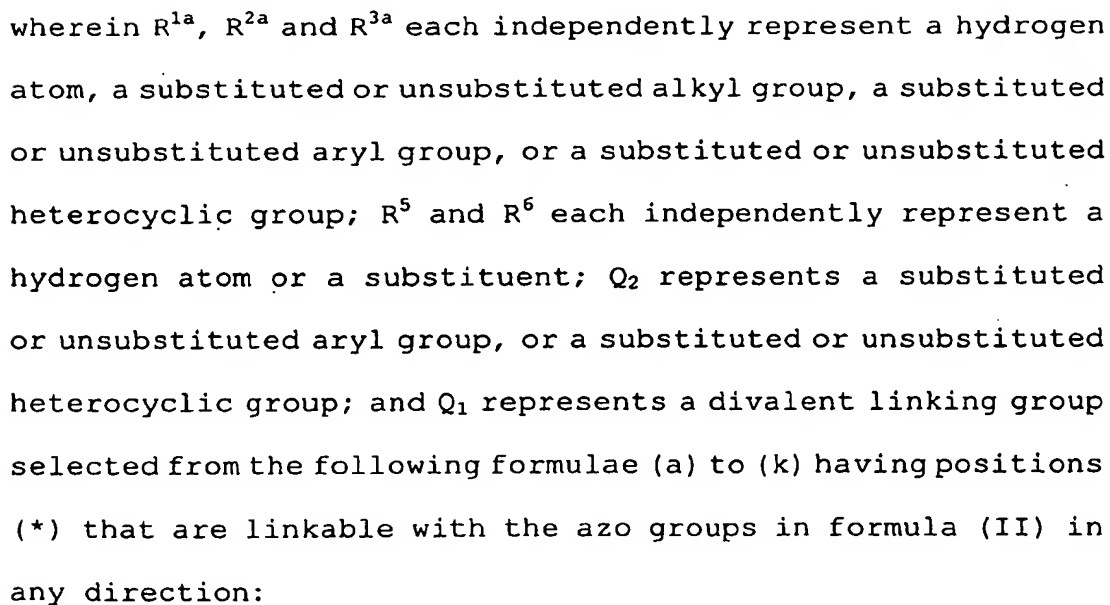
1. An optical information-recording medium comprising:
a support; and
a recording layer capable of recording information by laser beam exposure,
wherein the recording layer contains a dye represented by the following formula (I):

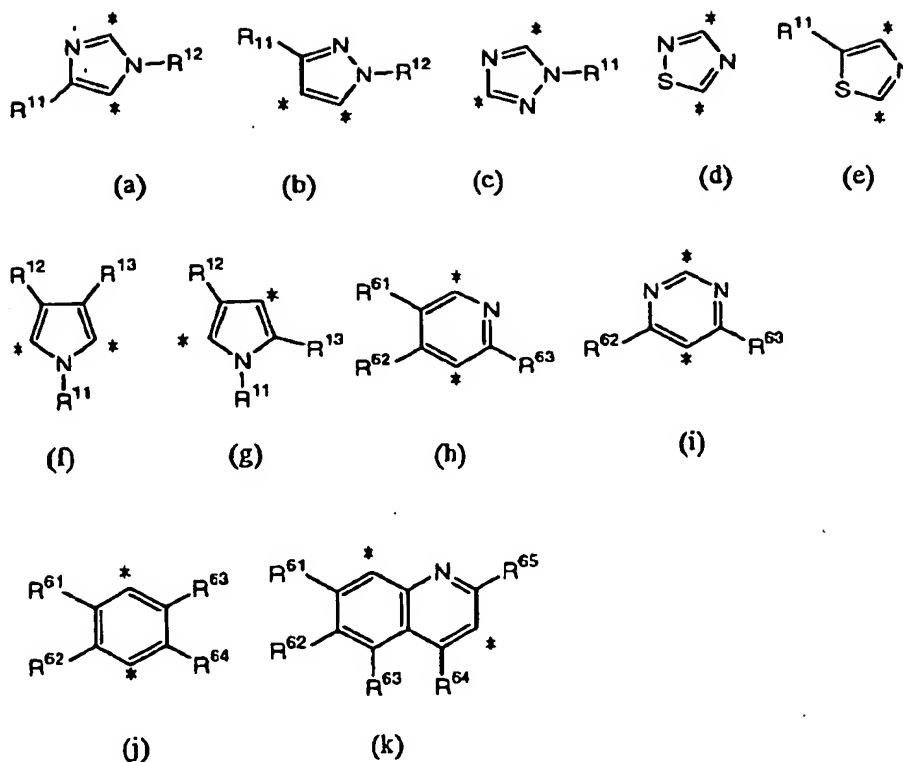


wherein R^1 , R^2 , R^3 and R^4 each independently represents a hydrogen atom or a substituent; B_1 and B_2 represent $=\text{CR}^5\text{-}$ and $-\text{CR}^6=$ respectively, or one of B_1 and B_2 represents a nitrogen atom and the other represents $=\text{CR}^5\text{-}$ or $-\text{CR}^6=$; R^5 and R^6 each independently represents a hydrogen atom or a substituent; Q_1 represents a substituted or unsubstituted arylene group, or a substituted or unsubstituted divalent heterocyclic group; and Q_2 represents a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group.

2. The optical information-recording medium as claimed in claim 1, wherein R^1 , R^2 , R^3 and R^4 each independently represents a hydrogen atom, a substituted or unsubstituted alkyl group,

3. The optical information-recording medium as claimed in claim 1, wherein the dye contained in the recording layer is represented by the following formula (II):

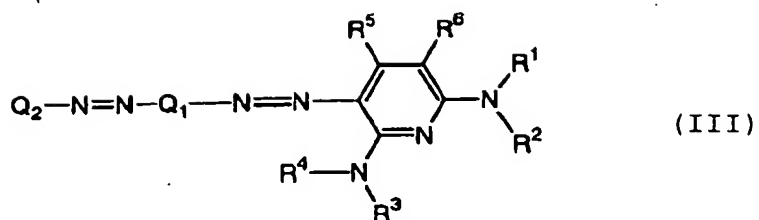




wherein R^{11} , R^{12} , R^{13} , R^{61} , R^{62} , R^{63} , R^{64} and R^{65} each represents a hydrogen atom or a substituent.

4. An optical information-recording medium comprising:
a support; and
a recording layer capable of recording information by laser beam exposure,

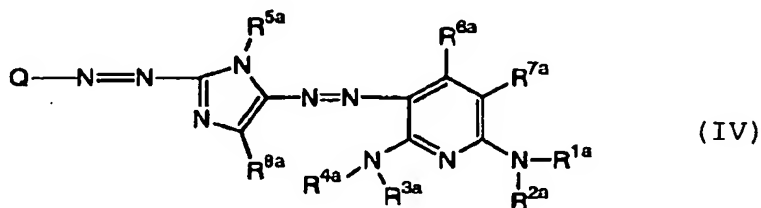
wherein the recording layer contains a metal azo chelate dye comprising: a dye represented by the following formula (III);
and at least one of a metal and a metal oxide:



wherein R^1 , R^2 , R^3 and R^4 each independently represents a hydrogen atom or a substituent; R^5 and R^6 each independently represents a hydrogen atom or a substituent; Q_1 represents a substituted or unsubstituted arylene group, or a substituted or unsubstituted divalent heterocyclic group; and Q_2 represents a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group.

5. The optical information-recording medium as claimed in claim 1, wherein the recording layer including the dye has a refractive index (n) of $2.0 < n < 2.7$, and an extinction coefficient (k) of $0.03 < k < 0.10$.

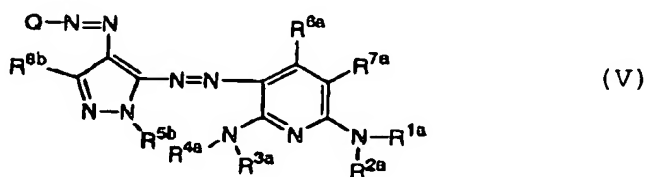
6. A dye represented by the following formula (IV):



wherein R^{1a} , R^{2a} , R^{3a} , R^{4a} and R^{5a} each independently represents

a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group; R^{6a} , R^{7a} and R^{8a} each independently represents a hydrogen atom or a substituent; and Q represents a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group.

7. A dye represented by the following formula (V):



wherein R^{1a} , R^{2a} , R^{3a} , R^{4a} and R^{5b} each independently represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group; R^{6a} , R^{7a} and R^{8b} each independently represents a hydrogen atom or a substituent; and Q represents a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group.

=> fil reg

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 COPYRIGHT (C) 2005 American Chemical Society (ACS)

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FILE 'LREGISTRY' ENTERED AT 09:46:19 ON 04 APR 2005
 L1 STR

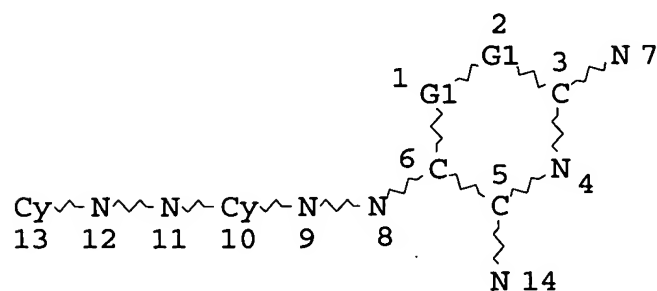
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 L2 29 S L1
 L3 STR L1
 L4 29 S L3
 L5 716 S L3 FUL
 SAV L5 MUL254/A

FILE 'HCAPLUS' ENTERED AT 10:08:00 ON 04 APR 2005
 L6 112 S L5
 L7 1 S US20040213947/PN
 L8 1 S L7 AND L6
 L9 3 S L6 AND OPTIC?
 L10 23 S L6 AND (DEVIC? OR DISK? OR DISC? OR DVD?)
 L11 20 S L6 AND RECORD?
 L12 39 S L9 OR L10 OR L11

FILE 'REGISTRY' ENTERED AT 10:57:11 ON 04 APR 2005

=> d que 16

L3 STR



VAR G1=C/N
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 13
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE
L5 716 SEA FILE=REGISTRY SSS FUL L3
L6 112 SEA FILE=HCAPLUS ABB=ON PLU=ON L5

=> fil hcap
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=> d 112 1-39 ibib abs hitstr hitind

L12 ANSWER 1 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:28413 HCAPLUS
DOCUMENT NUMBER: 142:103213
TITLE: Image formation process by employing coloring
compositions
INVENTOR(S): Chino, Tomohiro
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 39 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| DATE | | | |
| ----- | ---- | ----- | ----- |
| ----- | | | |
| JP 2005007707 | A2 | 20050113 | JP 2003-173486 |

2003

0618
PRIORITY APPLN. INFO.: JP 2003-173486

2003

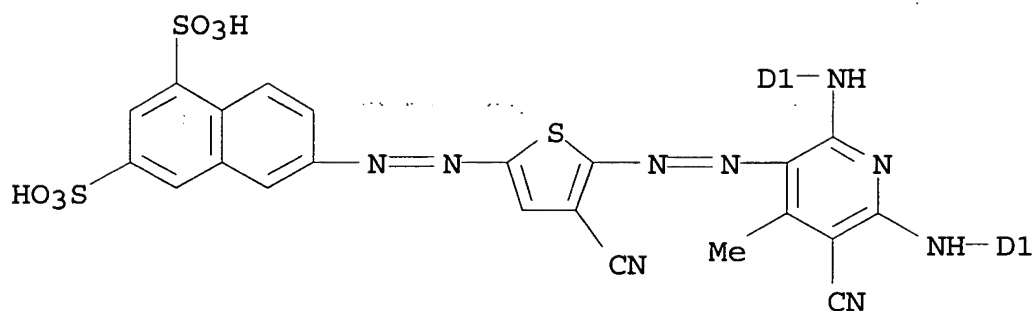
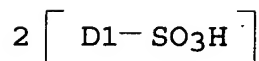
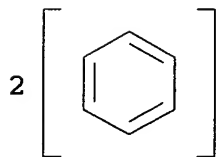
0618

AB The coloring compns. contain dyes whose aqueous solns. (at 2 + 10-5mol/L concentration) show prescribed absorption spectra having a molar absorbance coefficient (ϵ) of $\geq 40,000$ at a maximum wavelength (λ_{\max}) within a range of 570-620 nm, wherein the absorbance (a) at the maximum wavelength and that (b) at a wavelength of ($\lambda_{\max}-150$)nm satisfy $[(b)/(a) \geq 0.1]$, and the spectra has a prescribed half-width value (value given as a function of the absorbance at λ_{\max}). The coloring compns. may be of aqueous inks. Also claimed is ink-jet printing process employing the inks. The dyes show high lightfastness and high resistance to oxidizing gases such as O₃, and the aqueous inks are clogging resistant upon ink-jet printing.

IT 615558-67-3 615558-72-0
(black dyes; coloring compns. (aqueous inks) containing black dyes with high molar optical absorbance for ink-jet printing)

RN 615558-67-3 HCAPLUS

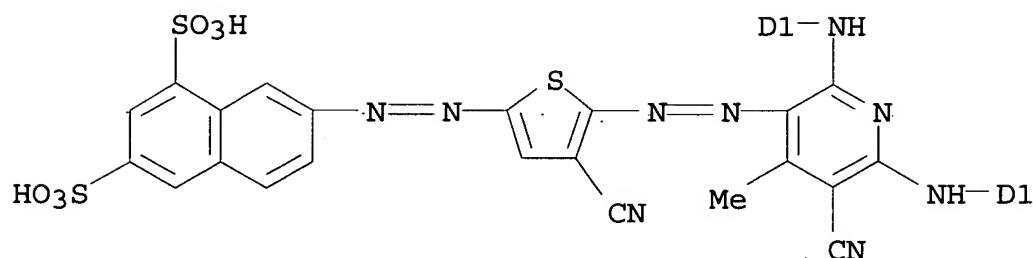
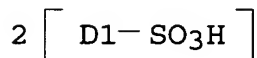
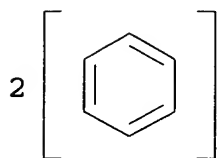
CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfohenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-
(9CI)
(CA INDEX NAME)



RN 615558-72-0 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 7-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis((sulfophenyl)amino)-3-pyridinyl]azo]-2-thienyl]azo]-
(9CI)

(CA INDEX NAME)



IC ICM B41M005-00

ICS B41J002-01; C09D011-00

CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 41, 42

IT Dyes

(black; coloring compns. (aqueous inks) containing black dyes with high

molar **optical** absorbance for ink-jet printing)

IT Ink-jet printing

(coloring compns. (aqueous inks) containing black dyes with high molar

optical absorbance for ink-jet printing)

IT Inks

(jet-printing, anticlogging, water-thinned; coloring compns. (aqueous inks) containing black dyes with high molar **optical** absorbance for ink-jet printing)

IT 615558-67-3 615558-72-0

(black dyes; coloring compns. (aqueous inks) containing black dyes with

high molar **optical** absorbance for ink-jet printing)

L12 ANSWER 2 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1154789 HCAPLUS

DOCUMENT NUMBER: 142:95974
 TITLE: Ink-jet **recording** inks with good
 light, heat, and ozone fastness and water
 resistance
 INVENTOR(S): Chino, Tomohiro; Fujiwara, Toshiki; Takasaki,
 Masaru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 65 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| WO 2004113463 | A1 | 20041229 | WO 2004-JP8260 |

2004

0607

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE,
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
 MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT,
 RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT,
 TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
 MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
 CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2003-173485 A

2003

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JP 2003-353498 A

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1014

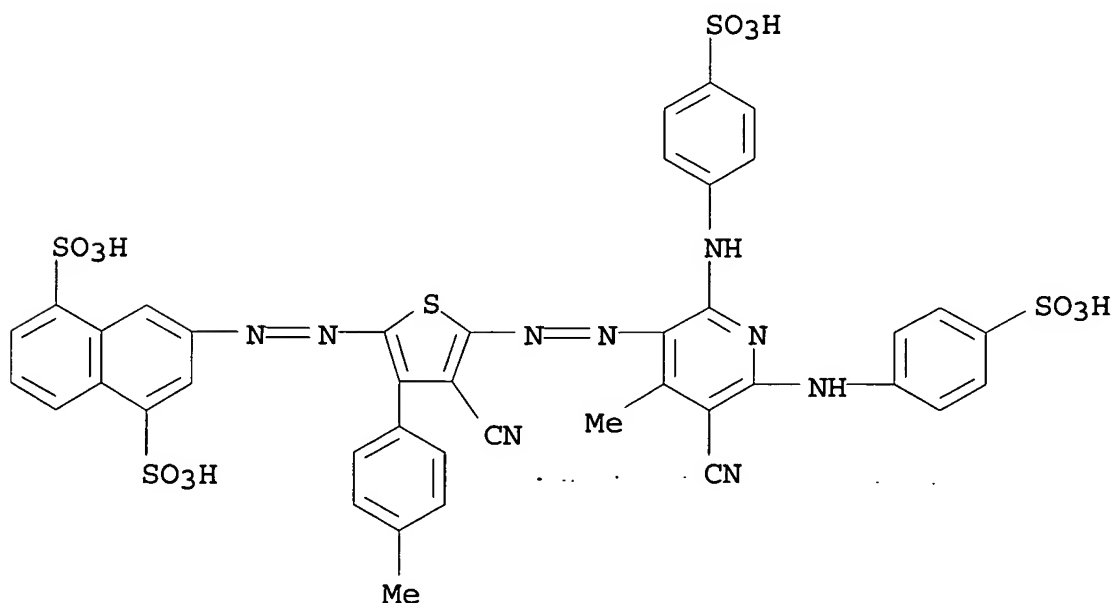
AB Title inks contains an azo dye having, in total, ≥ 13 conjugated π electrons in an aromatic ring thereof that is not directly bonded to any azo group. Thus, 22.7 g disodium 7-aminonaphthalene-1,5-disulfonate was diazotized, reacted with 10.0 g 2-amino-4-phenylthiazole to give a diazo compound, 10 g of which was reacted with 10 g nitrosylsulfuric acid to form diazonium salt, and reacted with 19.9 mol p-sulfophenylamino-substituted pyridine type coupler to give a diazo compound with λ_{\max} 588 nm, 25 g of which was mixed with diethylene glycol 20, glycerol 120, diethylene glycol monobutyl ether 230, 2-pyrrolidone 80, triethanolamine 17.9, benzotriazole 0.06, Surfynol TG 8.5, and Proxcel XL 2 1.8 g to give an ink showing good light, heat, and ozone fastness and water resistance.

IT 815676-22-3P 815676-29-0P 815676-35-8P
 815676-42-7P 815676-49-4P 815676-55-2P
 815676-61-0P 815676-67-6P 815676-73-4P
 815676-79-0P 815676-86-9P 815676-92-7P
 815677-01-1P

(dye; ink-jet recording inks with good light, heat, and ozone fastness and water resistance)

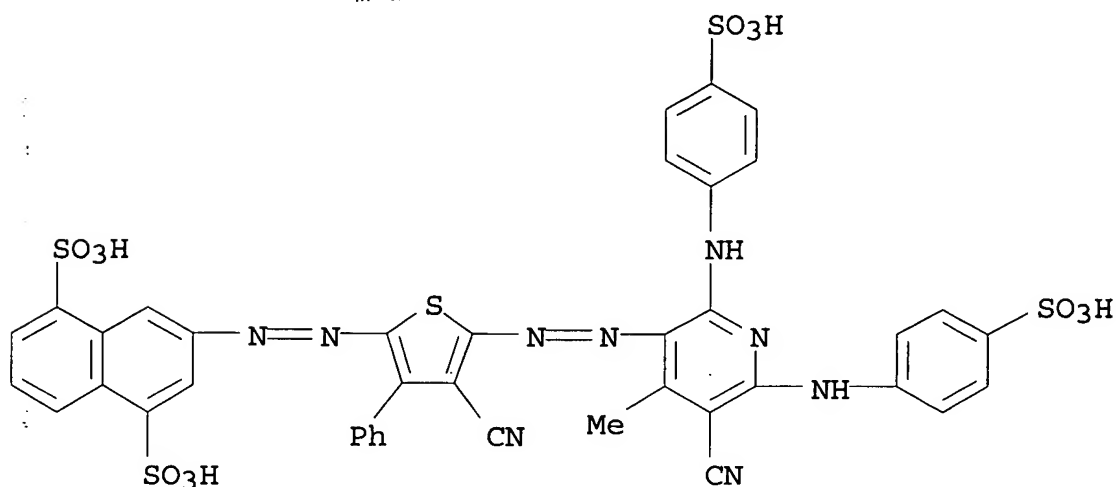
RN 815676-22-3 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-(4-methylphenyl)-2-thienyl]azo]- (9CI) (CA INDEX NAME)



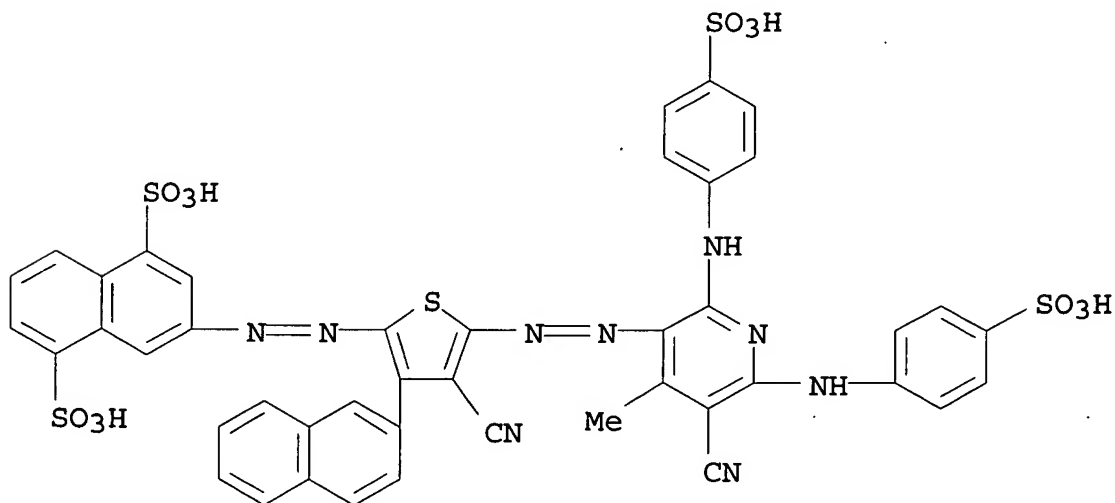
RN 815676-29-0 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-phenyl-2-thienyl]azo]- (9CI) (CA INDEX NAME)



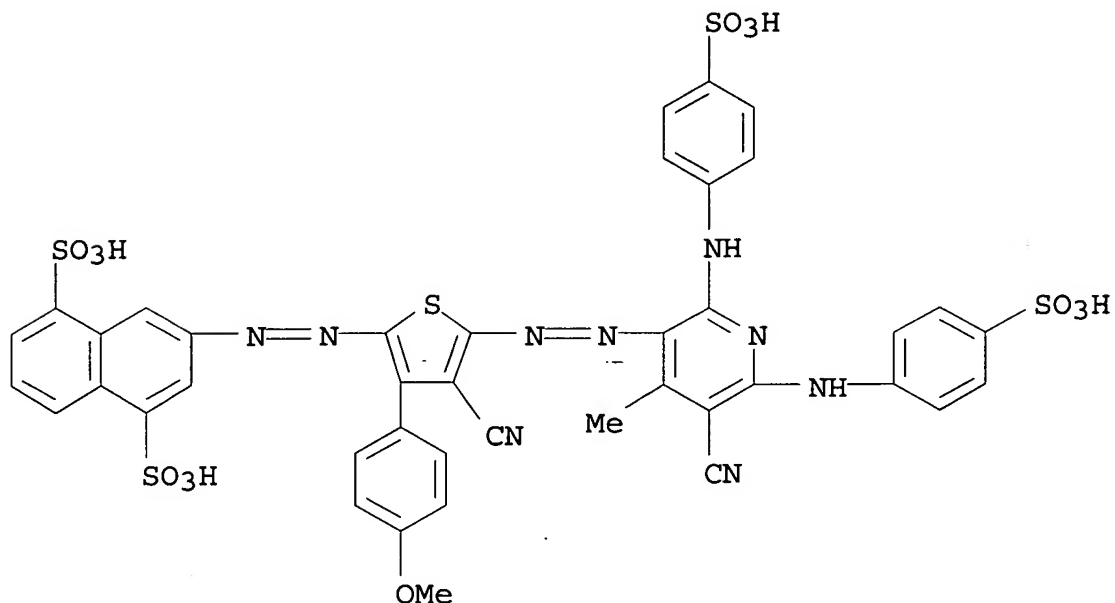
RN 815676-35-8 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-(2-naphthalenyl)-2-thienyl]azo]- (9CI) (CA INDEX NAME)



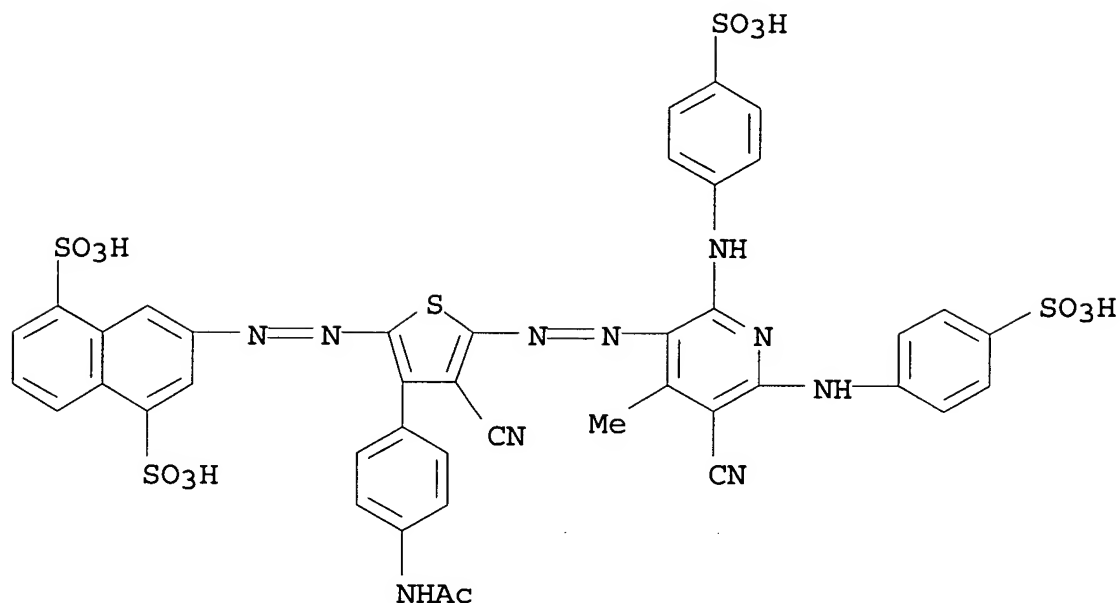
RN 815676-42-7 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-(4-methoxyphenyl)-2-thienyl]azo]- (9CI) (CA INDEX NAME)



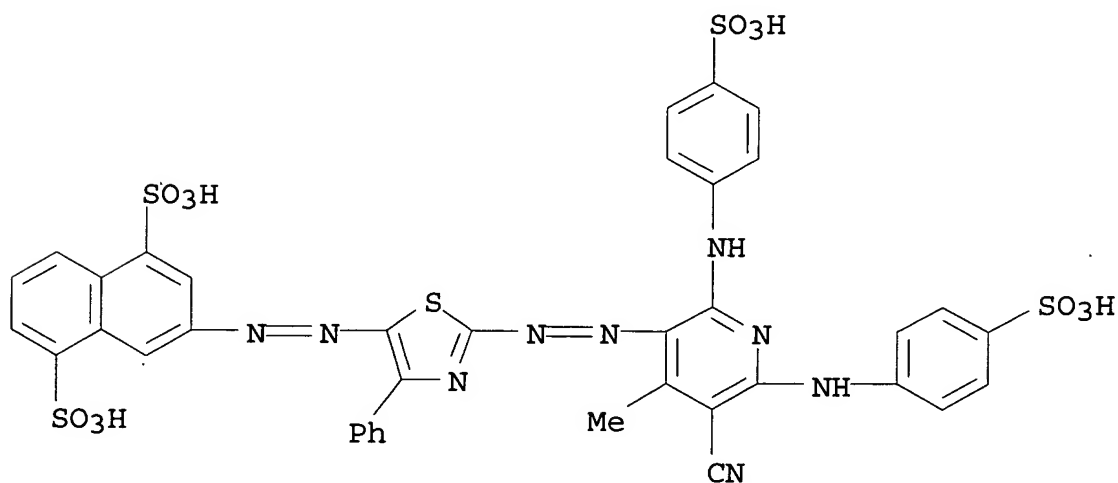
RN 815676-49-4 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[3-[4-(acetylamino)phenyl]-4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]- (9CI) (CA INDEX NAME)



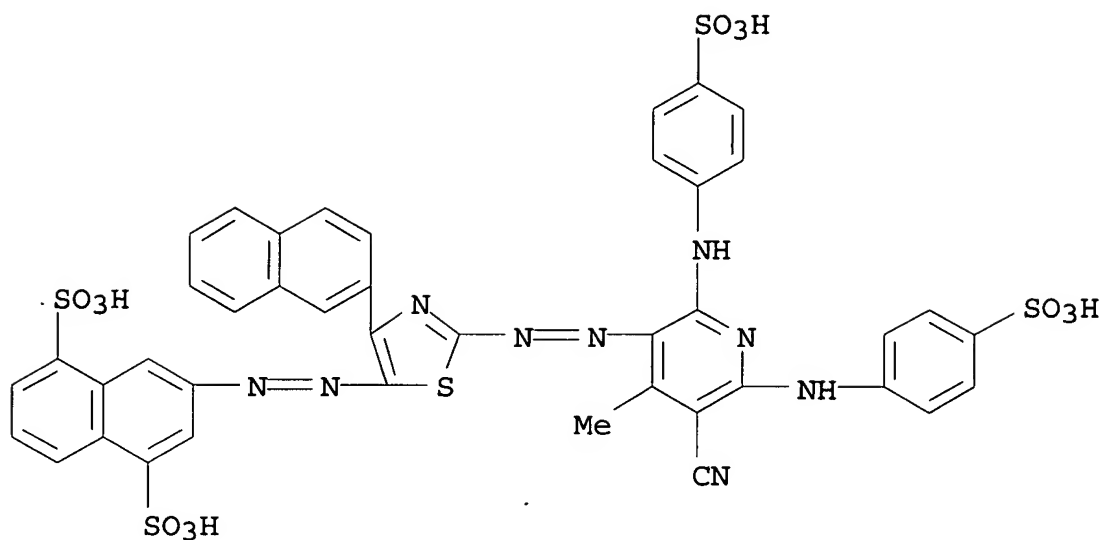
RN 815676-55-2 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[2-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-4-phenyl-5-thiazolyl]azo]- (9CI) (CA INDEX NAME)



RN 815676-61-0 HCAPLUS

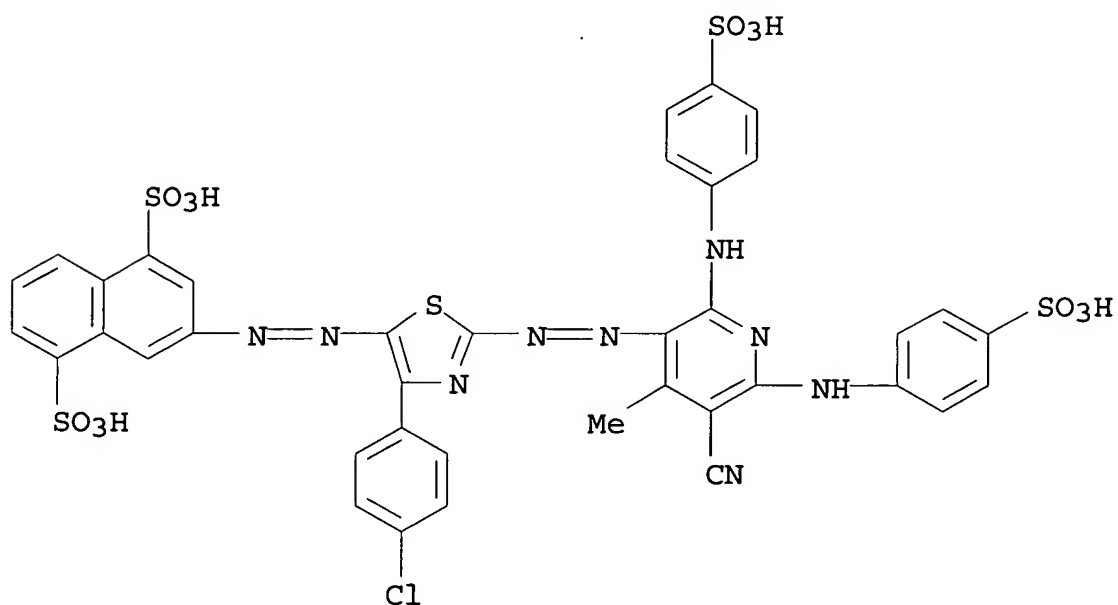
CN 1,5-Naphthalenedisulfonic acid, 3-[[2-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-4-(2-naphthalenyl)-5-thiazolyl]azo]- (9CI) (CA INDEX NAME)



RN 815676-67-6 HCAPLUS

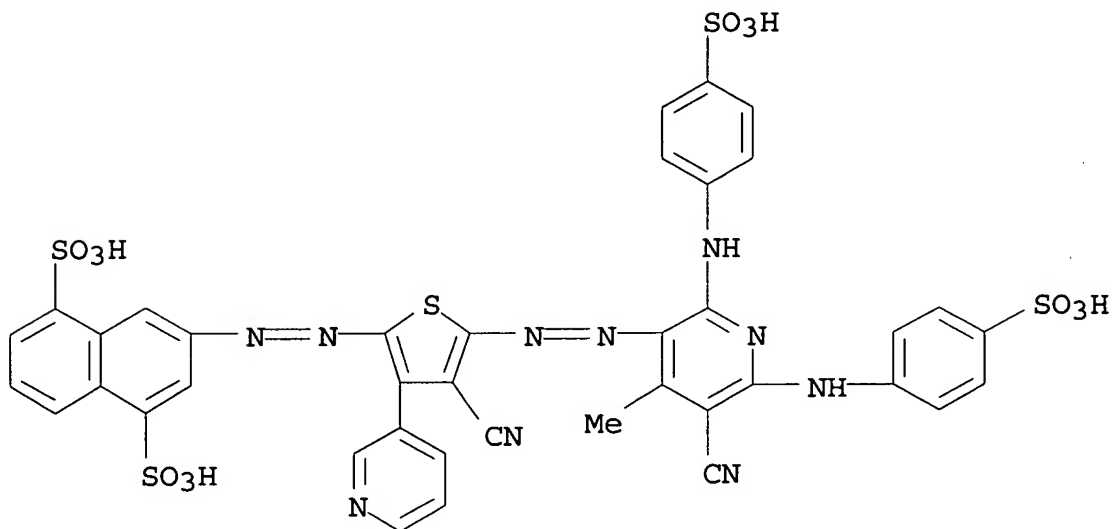
CN 1,5-Naphthalenedisulfonic acid,

3-[[4-(4-chlorophenyl)-2-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-5-thiazolyl]azo]- (9CI) (CA INDEX NAME)



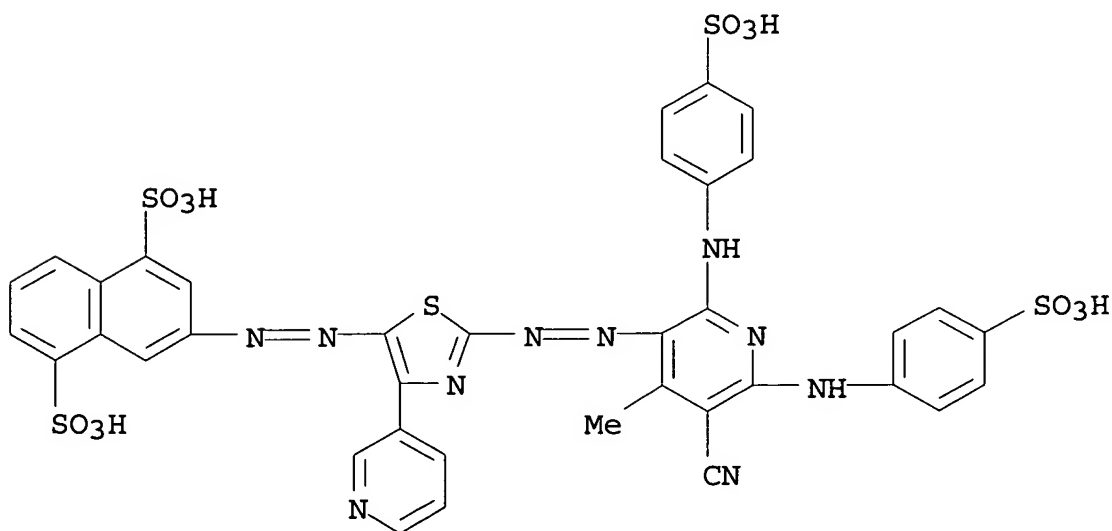
RN 815676-73-4 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-(3-pyridinyl)-2-thienyl]azo]- (9CI) (CA INDEX NAME)



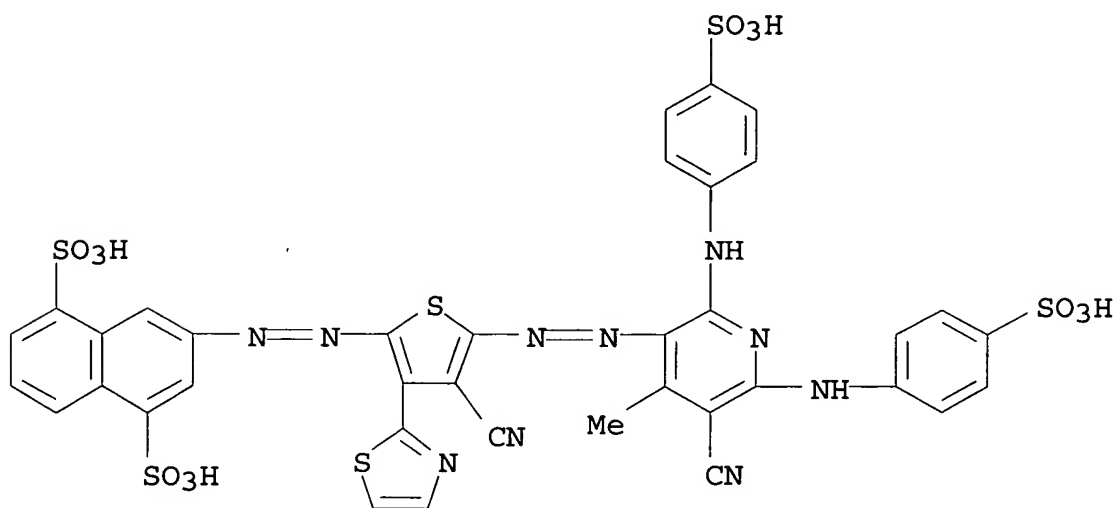
RN 815676-79-0 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[2-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-4-(3-pyridinyl)-5-thiazolyl]azo]- (9CI) (CA INDEX NAME)



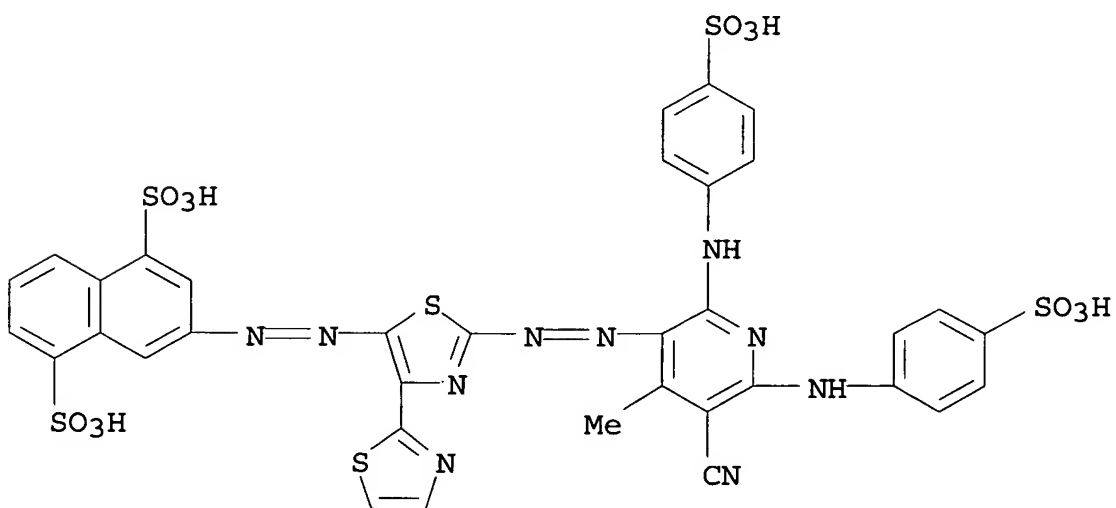
RN 815676-86-9 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-3-(2-thiazolyl)-2-thienyl]azo]- (9CI) (CA INDEX NAME)



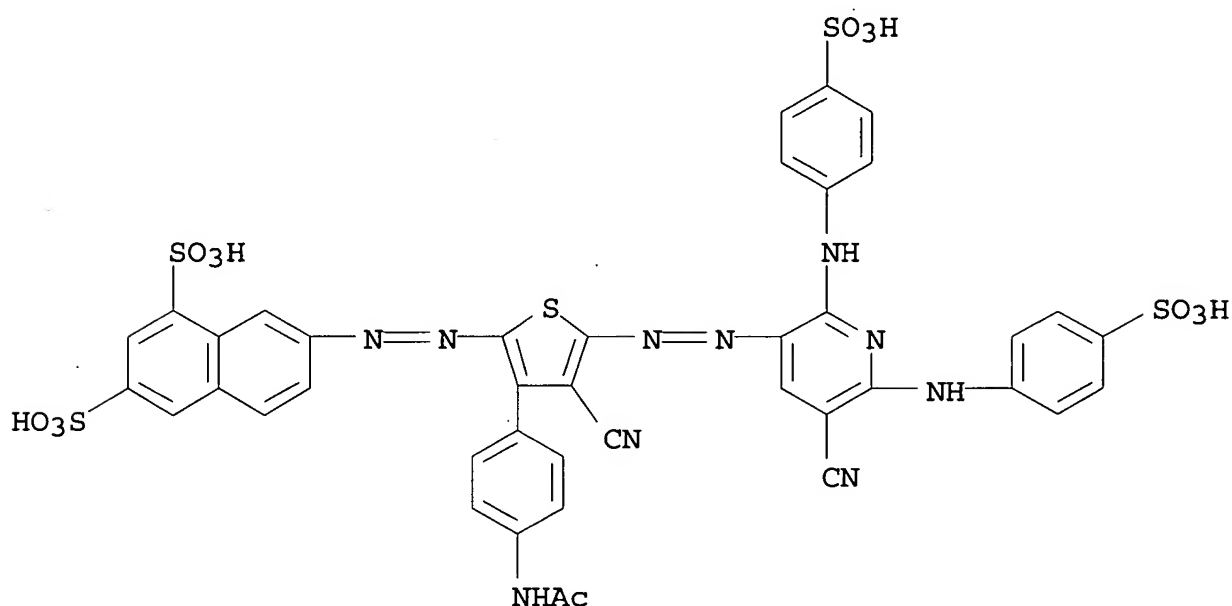
RN 815676-92-7 HCAPLUS

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RN 815677-01-1 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 7-[[3-[4-(acetylamino)phenyl]-4-cyano-5-[[5-cyano-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]- (9CI) (CA INDEX NAME)



IC ICM C09D011-00

ICS B41J002-01; B41M005-00

CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41

ST ink jet **recording** light heat ozone fastness water
resistance; disodium aminonaphthalenedisulfonate
aminophenylthiazole reactant diazo prepn

IT Azo dyes

(disazo; ink-jet **recording** inks with good light,
heat, and ozone fastness and water resistance)

IT Azo dyes

(dyes; ink-jet **recording** inks with good light, heat,
and ozone fastness and water resistance)

IT Dyes

(ink-jet **recording** inks with good light, heat, and
ozone fastness and water resistance)

IT Light-resistant materials

(inks; ink-jet **recording** inks with good light, heat,
and ozone fastness and water resistance)

IT Water-resistant materials

(jet-printing inks; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT Inks
(jet-printing, water-resistant; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT Inks
(light-resistant; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT 815676-22-3P 815676-29-0P 815676-35-8P
815676-42-7P 815676-49-4P 815676-55-2P
815676-61-0P 815676-67-6P 815676-73-4P
815676-79-0P 815676-86-9P 815676-92-7P
815677-01-1P
(dye; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT 815675-98-0P 815676-16-5P
(intermediate in dye preparation; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT 2010-06-2, 2-Amino-4-phenylthiazole 14170-43-5,
7-Aminonaphthalene-1,5-disulfonic acid disodium salt 21331-43-1
815676-09-6
(reactant in dye preparation; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

IT 7782-78-7, Nitrosylsulfuric acid
(reagent in dye preparation; ink-jet **recording** inks with good light, heat, and ozone fastness and water resistance)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE

IN THE RE FORMAT

L12 ANSWER 3 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:1014288 HCAPLUS
DOCUMENT NUMBER: 142:8098
TITLE: Color dye ink sets, containers containing them, and ink-jet **recording** method using them giving images with good color reproducibility and fastness
INVENTOR(S): Yabuki, Yoshiharu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 69 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| DATE | | | |
| ----- | ---- | ----- | ----- |
| ----- | | | |
| JP 2004331699 | A2 | 20041125 | JP 2003-125258 |

2003

0430

PRIORITY APPLN. INFO.:

JP 2003-125258

2003

0430

AB The sets contain yellow inks containing ≥ 1 yellow dyes, magenta inks containing ≥ 1 magenta dyes, cyan inks containing ≥ 1 cyan dyes, and black inks containing ≥ 1 black dyes, wherein the black dyes and the cyan or magenta dyes show oxidation potential nobler than 0.8 V. Thus, an ink set containing dyes with

oxidation

potentials 1.15-1.38 gave an image with good light, heat, and ozone resistance.

IT 615558-65-1 615558-66-2 615558-67-3

(black dye; ink sets containing dyes with oxidation potential nobler

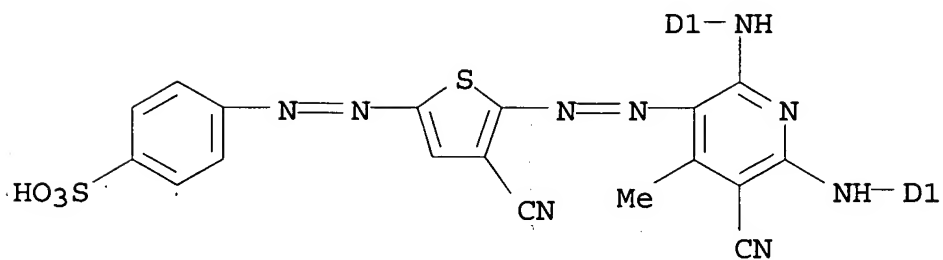
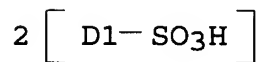
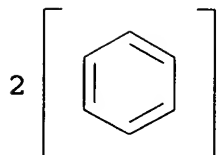
than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

RN 615558-65-1 HCAPLUS

CN Benzenesulfonic acid,

[[3-cyano-5-[[3-cyano-5-[(4-sulfophenyl)azo]-

2-thienyl]azo]-4-methyl-2,6-pyridinediyl]diimino]bis- (9CI) (CA INDEX NAME)

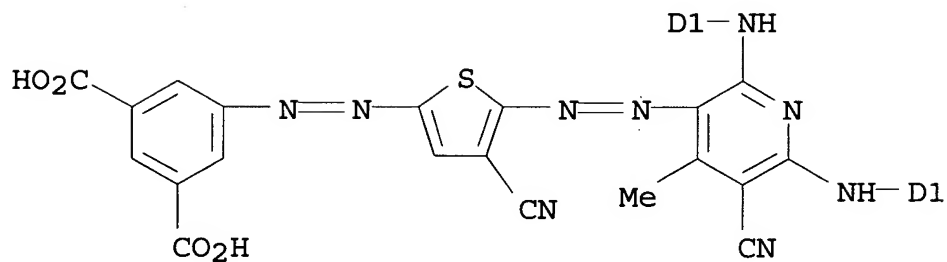
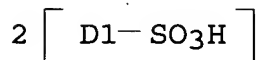
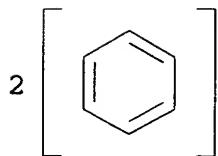


RN 615558-66-2 HCAPLUS

CN 1,3-Benzenedicarboxylic acid,

5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-

bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]- (9CI)
(CA INDEX NAME)

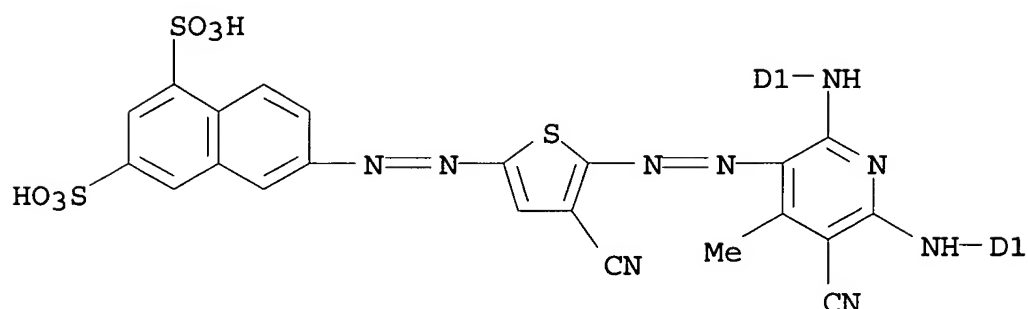
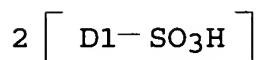
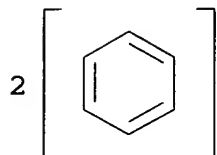


RN 615558-67-3 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-

(9CI)

(CA INDEX NAME)



IC ICM C09D011-00
ICS B41J002-01; B41M005-00
CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41, 74
ST dye ink set ozone **discoloration** prevention; ink jet
recording dye ink fastness; oxidn potential black dye
color reproducibility
IT Dyes
Ink-jet printing
Oxidation potential
(ink sets containing dyes with oxidation potential nobler
than 0.8 V
for ink-jet **recording** giving images with good color
reproducibility and light, heat, and ozone resistance)
IT Light-resistant materials
(inks; ink sets containing dyes with oxidation potential
nobler than
0.8 V for ink-jet **recording** giving images with good
color reproducibility and light, heat, and ozone resistance)
IT Inks
(jet-printing; ink sets containing dyes with oxidation
potential

nobler than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

IT Inks

(light-resistant; ink sets containing dyes with oxidation potential

nobler than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

IT 615558-65-1 615558-66-2 615558-67-3

(black dye; ink sets containing dyes with oxidation potential nobler

than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

IT 569316-88-7 587888-13-9 646535-76-4

(cyan dye; ink sets containing dyes with oxidation potential nobler

than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

IT 473266-14-7 473465-75-7 473465-76-8 586407-98-9
798566-82-2

(magenta dye; ink sets containing dyes with oxidation potential nobler

than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

IT 214358-01-7 365280-25-7 586407-70-7 586407-74-1
798566-80-0 798566-81-1

(yellow dye; ink sets containing dyes with oxidation potential nobler

than 0.8 V for ink-jet **recording** giving images with good color reproducibility and light, heat, and ozone resistance)

L12 ANSWER 4 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:960304 HCAPLUS

DOCUMENT NUMBER: 141:396994

TITLE: Ink-jet ink for ink set with good image quality and image stability and ink-jet **recording** method

INVENTOR(S): Taguchi, Toshiki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 154 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------------------------|----------------------|----------------------------|---------------------------------|
| ----- ----- JP 2004315808 | ----- ----- A2 | ----- ----- 20041111 | ----- ----- JP 2004-91936 |
| 2004 | | | |
| 0326 | | | |
| US 2005004260 | A1 | 20050106 | US 2004-811395 |
| 2004 | | | |
| 0329 | | | |
| PRIORITY APPLN. INFO.: | | | JP 2003-88360 A |
| 2003 | | | |
| 0327 | | | |
| | | | JP 2003-89145 A |
| 2003 | | | |
| 0327 | | | |
| | | | JP 2003-89978 A |
| 2003 | | | |
| 0328 | | | |
| | | | JP 2004-91936 A |
| 2004 | | | |
| 0326 | | | |

AB Title inkjet ink comprises (I) at least one an azo dye having a heterocyclic group, or a phthalocyanine dye having -SO-, -SO2-, and/or -CO- groups, (II) a water-soluble solvent, and (III) at least one compound selected from an alkylene polyol, a polymer (e.g.,

1-vinylimidazole-1-vinyl-2-pyrrolidone-potassium
p-styrenesulfonate copolymer), and a compound which can
interaction
with the dye.

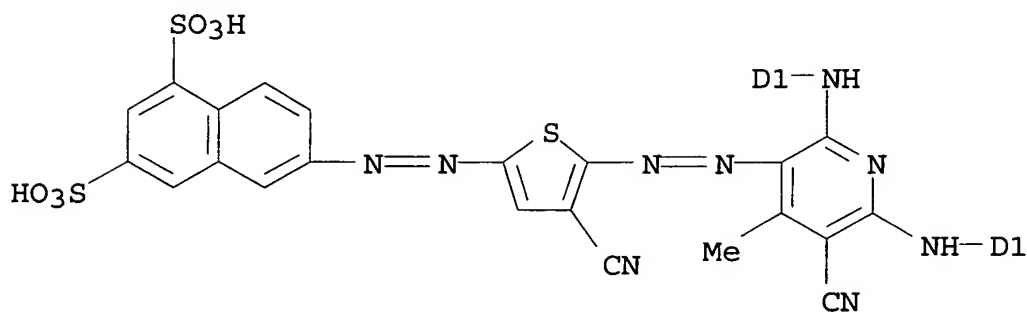
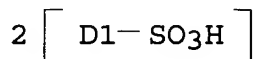
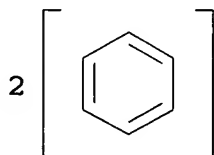
IT 675594-63-5

(black dye; production of ink-jet ink for ink set with high
image
quality and ink-jet recording method)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-
2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-,
tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
ICS B41J002-01; B41M005-00; C09B029-42; C09B029-48; C09B031-153;
C09B047-24

CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41

ST ink jet **recording** set azo phthalocyanine dye

IT Inks
(jet-printing; production of ink-jet ink for ink set with high
image quality and ink-jet **recording** method)

IT Cyanine dyes
(phthalocyanine; production of ink-jet ink for ink set with
high
image quality and ink-jet **recording** method)

IT Azo dyes
Ink-jet printing
(production of ink-jet ink for ink set with high image
quality and
ink-jet **recording** method)

IT 64346-41-4 675594-63-5
(black dye; production of ink-jet ink for ink set with high
image
quality and ink-jet **recording** method)

IT 578729-33-6
(cyan dye; production of ink-jet ink for ink set with high
image
quality and ink-jet **recording** method)

IT 473465-85-9
(magenta dye; production of ink-jet ink for ink set with high
image
quality and ink-jet **recording** method)

IT 3030-47-5, Pentamethyldiethylenetriamine 25014-15-7,
2-Vinylpyridine homopolymer 25232-42-2, 1-Vinylimidazole
homopolymer 26913-06-4, Polyethyleneamine 28501-18-0
29297-55-0, N-Vinylpyrrolidone-N-vinylimidazole copolymer
81517-61-5 103437-05-4, 1-Vinylimidazole-1-vinyl-2-pyrrolidone-
potassium p-styrenesulfonate copolymer 113783-49-6,
2-Hydroxyethyl methacrylate-3-methyl-1-vinylimidazolium chloride
copolymer 157516-70-6, Potassium methacrylate-1-vinyl-2-
pyrrolidone-potassium copolymer 790664-42-5
(production of ink-jet ink for ink set with high image
quality and
ink-jet **recording** method)

IT 67-63-0, Isopropanol, uses 107-98-2, 1-Methoxy-2-propanol
25728-71-6, Tetraethylene glycol monoacetate
(production of ink-jet ink for ink set with high image
quality and
ink-jet **recording** method)

IT 608101-10-6

(yellow dye; production of ink-jet ink for ink set with high
image
quality and ink-jet **recording** method)

L12 ANSWER 5 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:905411 HCAPLUS

DOCUMENT NUMBER: 141:386461

TITLE: **Optical** information-
recording medium and dyeINVENTOR(S): Watanabe, Tetsuya; Sen, Masatomi; Mikoshiba,
Hisashi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 20 pp.

CODEN: USXXCO

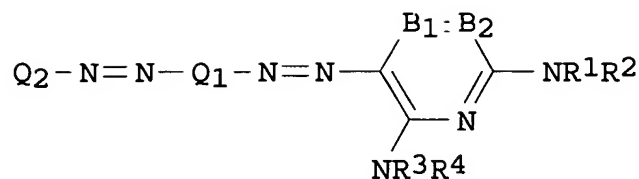
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|------------------------|-------------------|----------|------------------|
| ----- | ---- | ----- | ----- |
| US 2004213947 | A1 | 20041028 | US 2004-826254 |
| 2004 | | | |
| 0419 | | | |
| JP 2004322359 | A2 | 20041118 | JP 2003-117104 |
| 2003 | | | |
| 0422 | | | |
| PRIORITY APPLN. INFO.: | | | JP 2003-117104 A |
| 2003 | | | |
| 0422 | | | |
| OTHER SOURCE(S): | MARPAT 141:386461 | | |
| GI | | | |



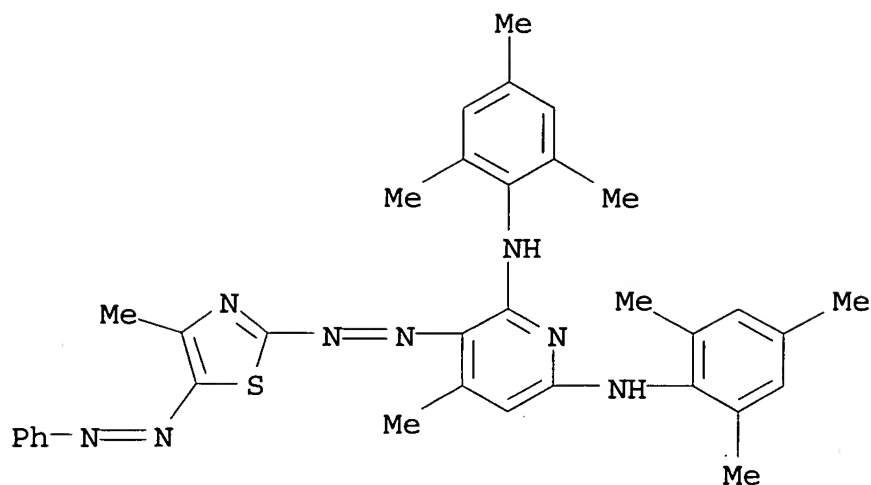
I

AB The present invention provides an **optical** information-**recording** medium capable of **recording** and reproducing information with laser beams and having excellent **recording** characteristics, the **optical** information-**recording** medium comprising a support and a **recording** layer capable of **recording** information by laser beam exposure, wherein the **recording** layer contains a dye represented by the following formula I (R₁, R₂, R₃ and R₄ = H, substituent; B₁, B₂ are =CR₅-, -CR₆= resp., or one of B₁ and B₂ represents a nitrogen atom and the other represents =CR₅-, -CR₆=; R₅ and R₆ = H, substituent; Q₁ = arylene, divalent heterocyclic; Q₂ = aryl, heterocyclic). By using the dye according to the invention, a high sensitivity **optical** information-**recording** medium showing high reflectance to laser beams and high degree of modulation can be obtained, and an **optical** information-**recording** medium excellent in light fastness can be obtained.

IT 782503-08-6P 782503-10-0P 782503-11-1P
(**optical** information-**recording** medium and dye)

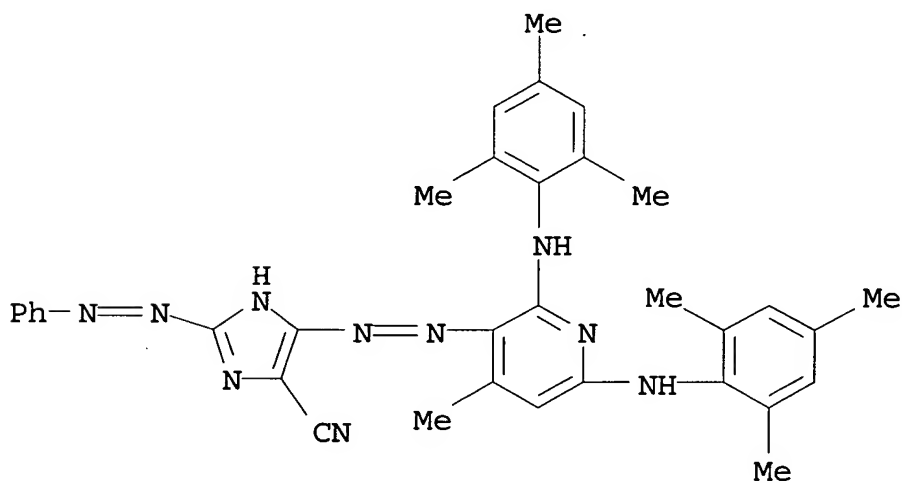
RN 782503-08-6 HCAPLUS

CN 2,6-Pyridinediamine, 4-methyl-3-[[4-methyl-5-(phenylazo)-2-thiazolyl]azo]-N,N'-bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)



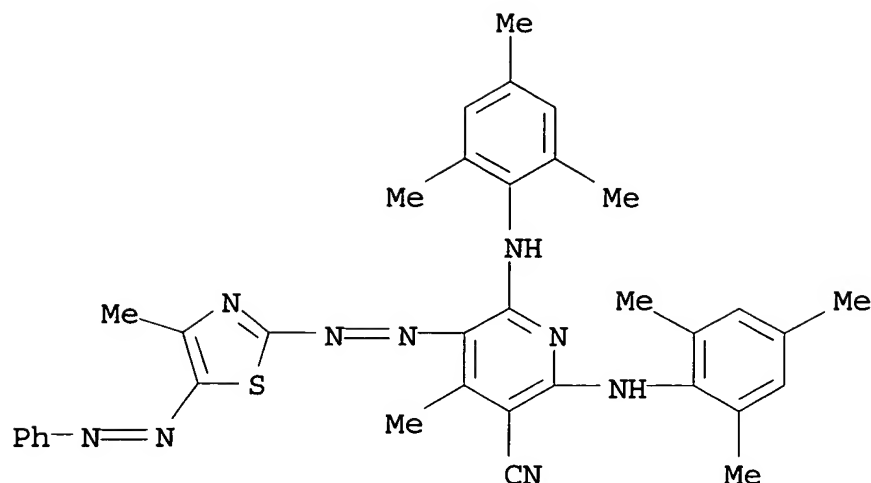
RN 782503-10-0 HCAPLUS

CN 1H-Imidazole-4-carbonitrile, 5-[[4-methyl-2,6-bis[(2,4,6-trimethylphenyl)amino]-3-pyridinyl]azo]-2-(phenylazo)- (9CI) (CA INDEX NAME)



RN 782503-11-1 HCAPLUS

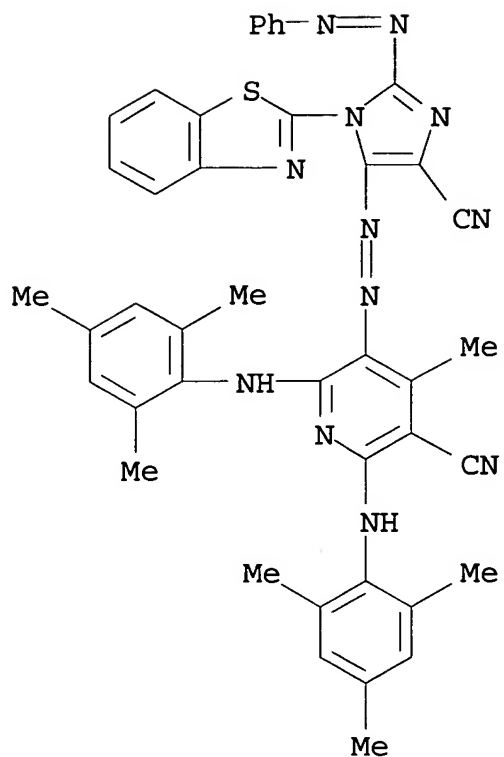
CN 3-Pyridinecarbonitrile, 4-methyl-5-[[4-methyl-5-(phenylazo)-2-thiazolyl]azo]-2,6-bis[(2,4,6-trimethylphenyl)amino]- (9CI) (CA INDEX NAME)



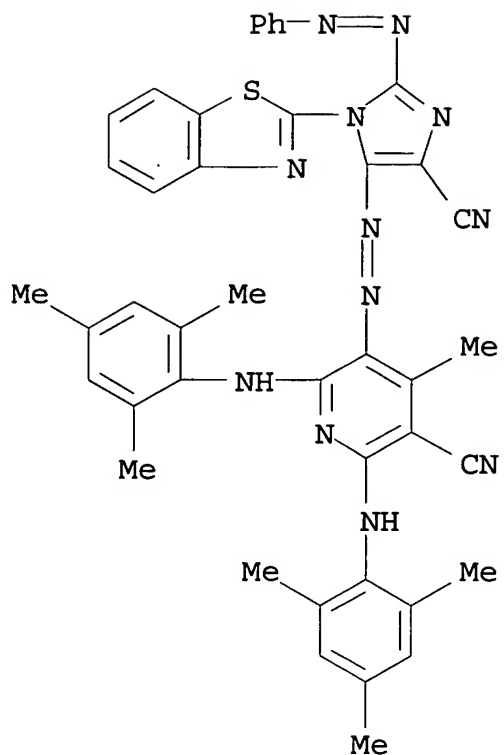
IT 782503-12-2 782503-12-2D, nickel or zinc complex
 782503-13-3 782503-14-4 782503-14-4D,
 nickel complex 782503-15-5 782503-16-6
 782503-17-7 782503-18-8D, nickel complex
 (optical information-recording medium and
 dye)

RN 782503-12-2 HCAPLUS

CN 3-Pyridinecarbonitrile, 5-[[[1-(2-benzothiazolyl)-4-cyano-2-(phenylazo)-1H-imidazol-5-yl]azo]-4-methyl-2,6-bis[(2,4,6-trimethylphenyl)amino]- (9CI) (CA INDEX NAME)

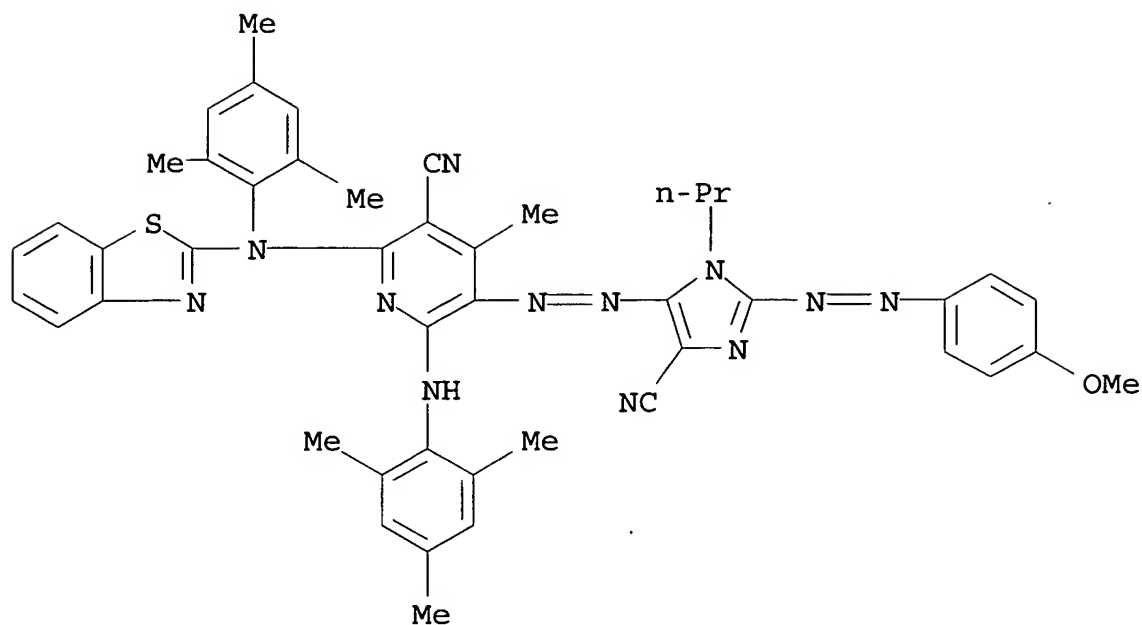


RN 782503-12-2 HCAPLUS
 CN 3-Pyridinecarbonitrile, 5-[[[1-(2-benzothiazolyl)-4-cyano-2-(phenylazo)-1H-imidazol-5-yl]azo]-4-methyl-2,6-bis[(2,4,6-trimethylphenyl)amino]- (9CI) (CA INDEX NAME)



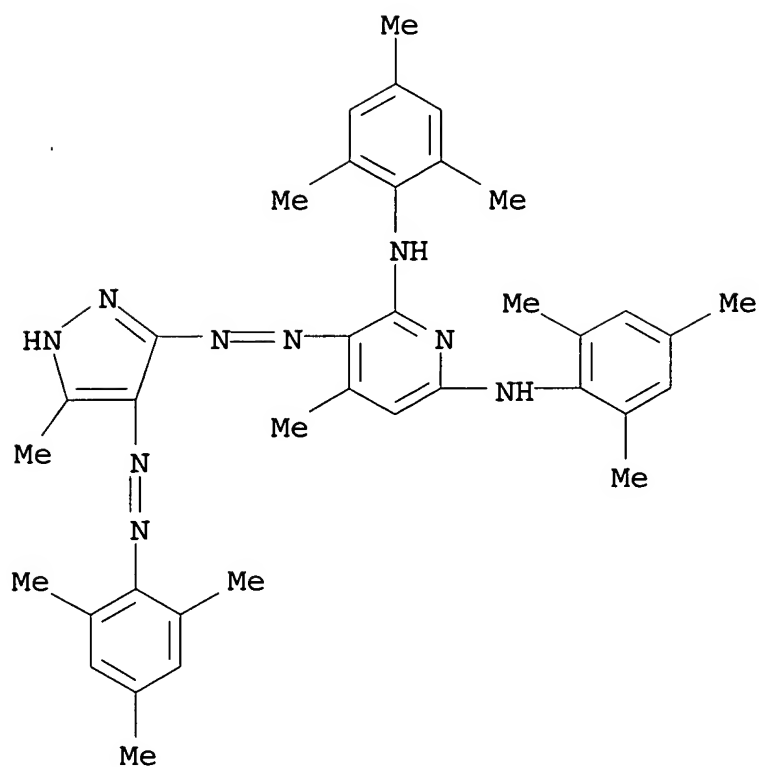
RN 782503-13-3 HCAPLUS

CN 3-Pyridinecarbonitrile, 2-[2-benzothiazolyl(2,4,6-trimethylphenyl)amino]-5-[[4-cyano-2-[(4-methoxyphenyl)azo]-1-propyl-1H-imidazol-5-yl]azo]-4-methyl-6-[(2,4,6-trimethylphenyl)amino]- (9CI) (CA INDEX NAME)



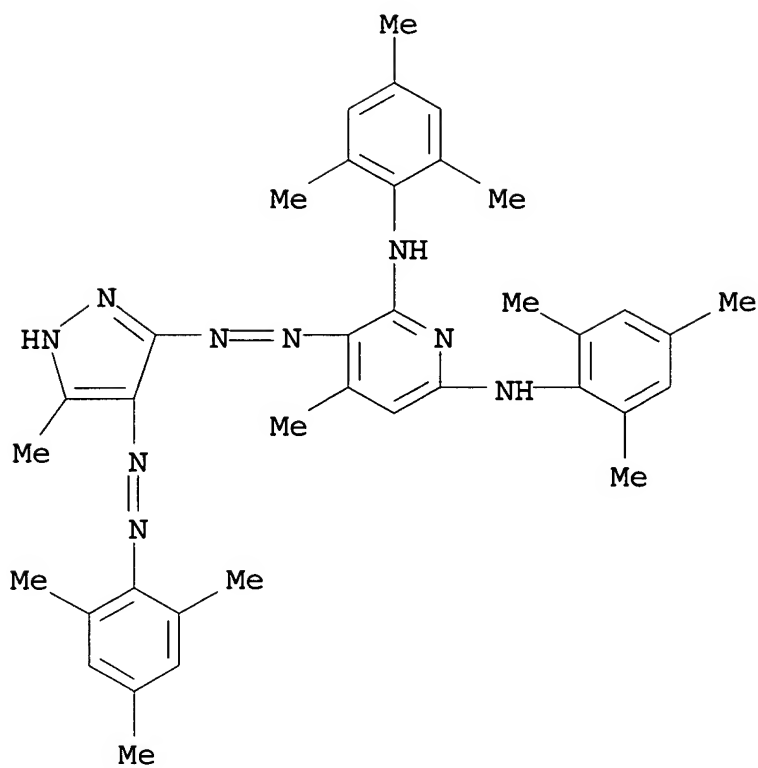
RN 782503-14-4 HCAPLUS

CN 2,6-Pyridinediamine, 4-methyl-3-[[5-methyl-4-[(2,4,6-trimethylphenyl)azo]-1H-pyrazol-3-yl]azo]-N,N'-bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)



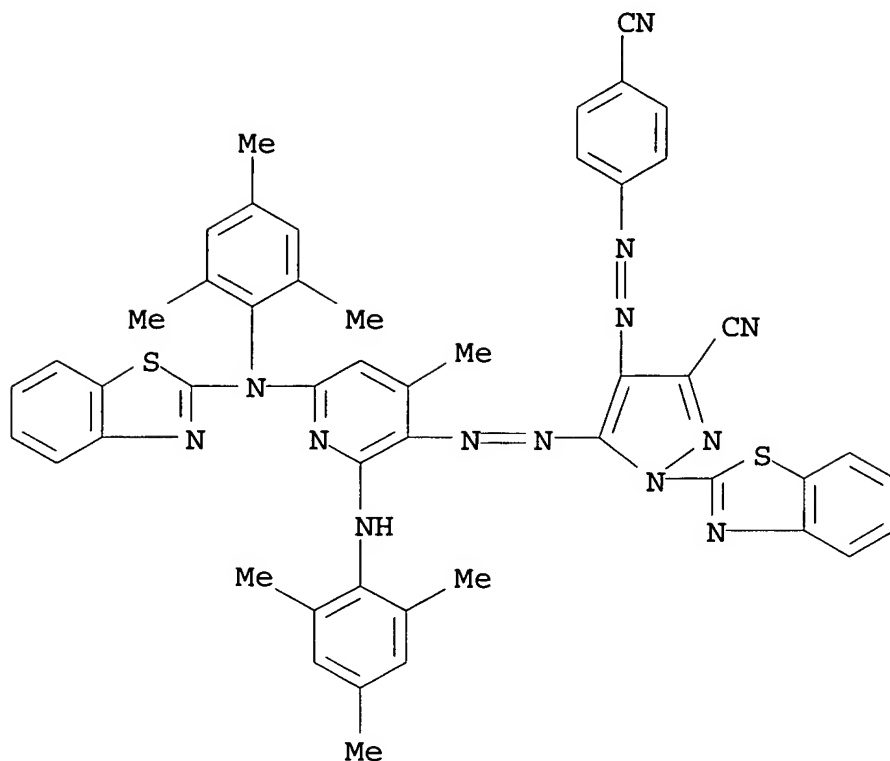
RN 782503-14-4 HCAPLUS

CN 2,6-Pyridinediamine, 4-methyl-3-[[5-methyl-4-[(2,4,6-trimethylphenyl)azo]-1H-pyrazol-3-yl]azo]-N,N'-bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)



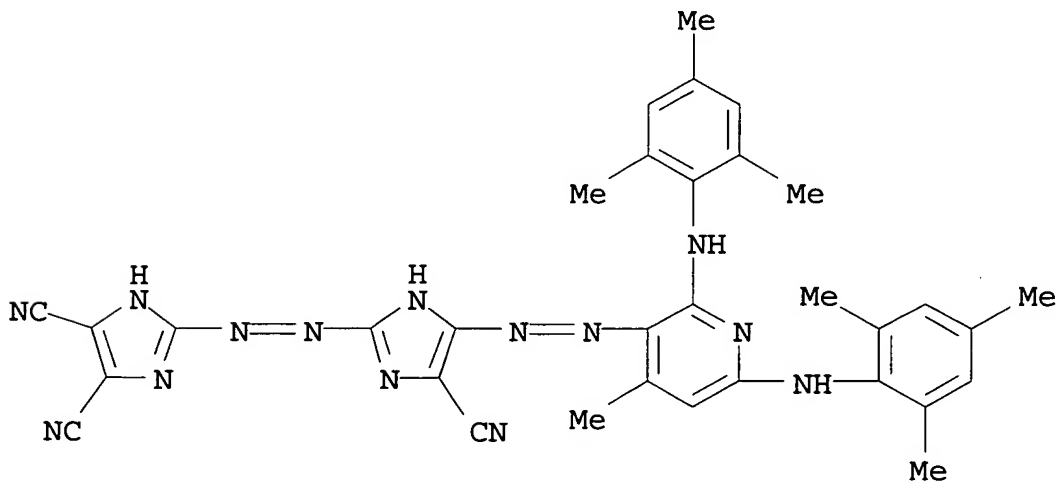
RN 782503-15-5 HCAPLUS

CN 1H-Pyrazole-3-carbonitrile, 1-(2-benzothiazolyl)-5-[[6-[2-benzothiazolyl(2,4,6-trimethylphenyl)amino]-4-methyl-2-[(2,4,6-trimethylphenyl)amino]-3-pyridinyl]azo]-4-[(4-cyanophenyl)azo]-(9CI) (CA INDEX NAME)



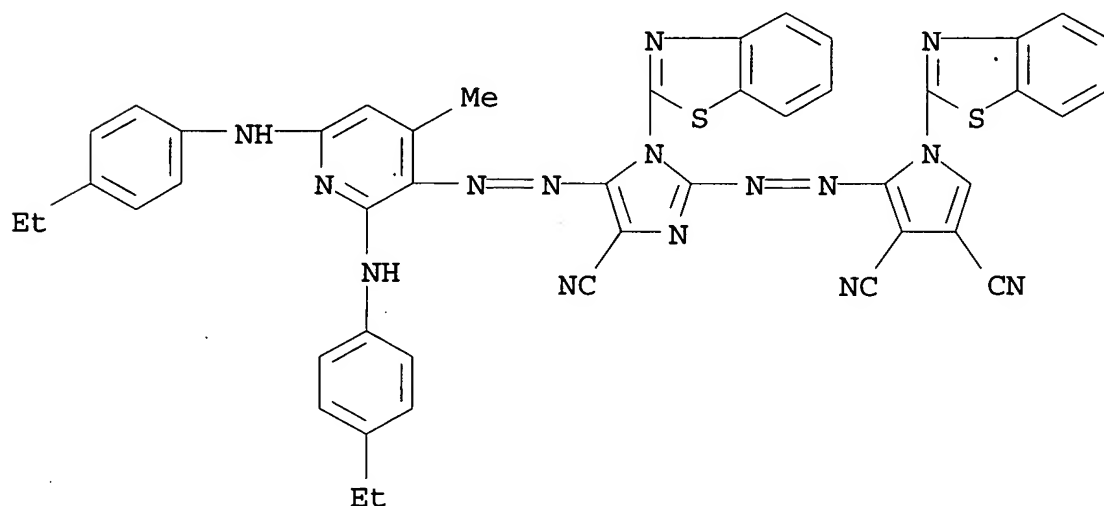
RN 782503-16-6 HCAPLUS

CN 1H-Imidazole-4,5-dicarbonitrile, 2-[[[4-cyano-5-[[4-methyl-2,6-bis[(2,4,6-trimethylphenyl)amino]-3-pyridinyl]azo]-1H-imidazol-2-yl]azo]- (9CI) (CA INDEX NAME)



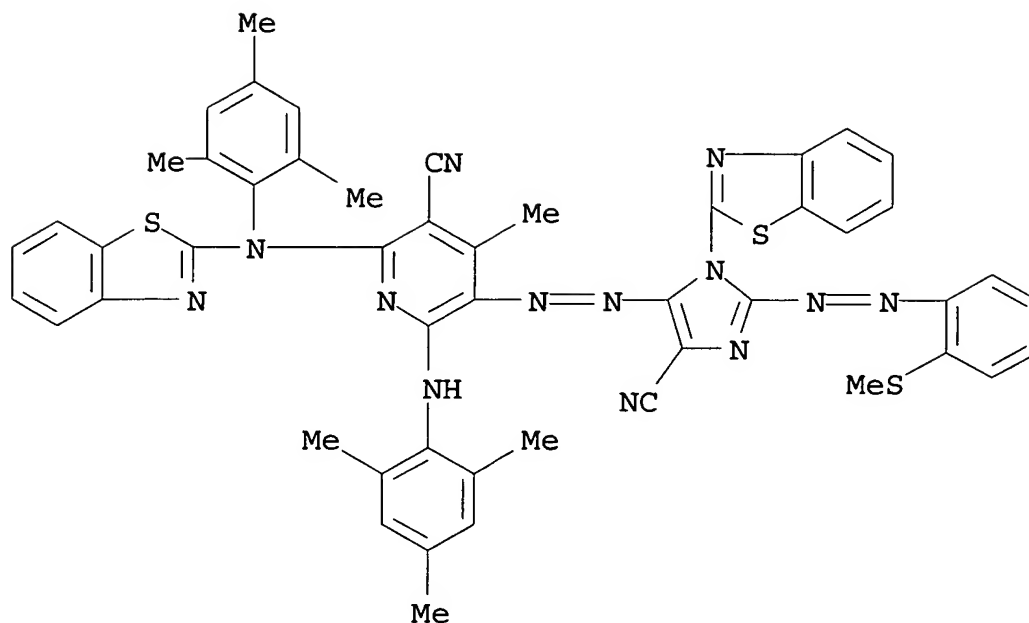
RN 782503-17-7 HCAPLUS

CN 1H-Pyrrole-3,4-dicarbonitrile, 1-(2-benzothiazolyl)-2-[[1-(2-benzothiazolyl)-5-[[2,6-bis[(4-ethylphenyl)amino]-4-methyl-3-pyridinyl]azo]-4-cyano-1H-imidazol-2-yl]azo]- (9CI) (CA INDEX NAME)



RN 782503-18-8 HCAPLUS

CN 3-Pyridinecarbonitrile, 5-[[1-(2-benzothiazolyl)-4-cyano-2-[[2-(methylthio)phenyl]azo]-1H-imidazol-5-yl]azo]-2-[2-benzothiazolyl(2,4,6-trimethylphenyl)amino]-4-methyl-6-[(2,4,6-trimethylphenyl)amino]- (9CI) (CA INDEX NAME)



IC ICM B32B003-02
 NCL 428064400
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 ST **optical recording disk DVD**
 dye
 IT **Optical ROM disks**
 (optical information-recording medium and
 dye)
 IT 782503-08-6P 782503-10-0P 782503-11-1P
 (optical information-recording medium and
 dye)
 IT 782503-12-2 782503-12-2D, nickel or zinc complex
 782503-13-3 782503-14-4 782503-14-4D,
 nickel complex 782503-15-5 782503-16-6
 782503-17-7 782503-18-8D, nickel complex
 (optical information-recording medium and
 dye)
 IT 100-34-5 1603-91-4 4919-03-3, 1H-Imidazol-4-amine
 38439-33-7
 782503-22-4
 (preparation of dye for **optical** information-
recording medium)
 IT 4856-80-8P 473465-37-1P 782503-19-9P 782503-21-3P
 782503-24-6P
 (preparation of dye for **optical** information-

recording medium)

L12 ANSWER 6 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:873934 HCAPLUS
DOCUMENT NUMBER: 141:351542
TITLE: Production of ink-jet ink with high image
quality and image preservability and ink-jet
recording thereof
INVENTOR(S): Ozawa, Takashi; Ogawa, Manabu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 133 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------------------------|--------------------|----------------------------|---------------------------------|
| ----- ----- JP 2004292707 | ---- ---- A2 | ----- ----- 20041021 | ----- ----- JP 2003-89230 |

2003

0327

PRIORITY APPLN. INFO.: JP 2003-89230

2003

0327

OTHER SOURCE(S): MARPAT 141:351542

AB Title ink-jet ink comprises a dye (e.g., azo dye), a
water-soluble

organic solvent (e.g., diethylene glycol), a betaine compound
(e.g.,
lauryldimethylaminoacetate betaine), and an antifoaming agent
such

as di-Me polysiloxane-polyalkylene oxide copolymer (e.g., Silwet
FZ 2207). The inkjet ink exhibits excellent stability of images
under high-humidity conditions.

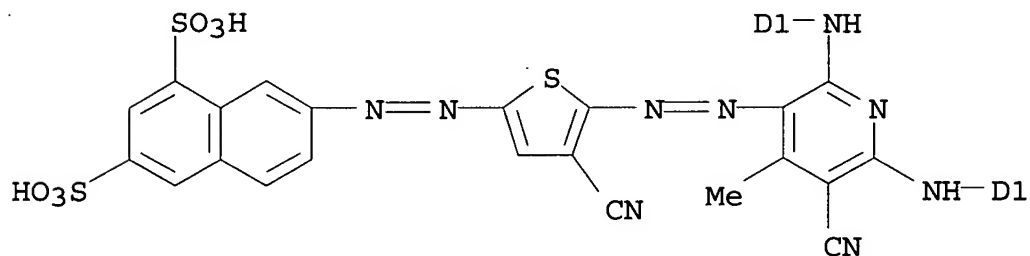
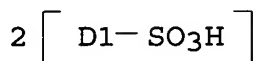
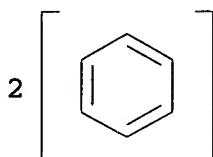
IT 769168-16-3 769168-17-4

(black dye; production of ink-jet ink with high image quality
and
image preservability)

RN 769168-16-3 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 7-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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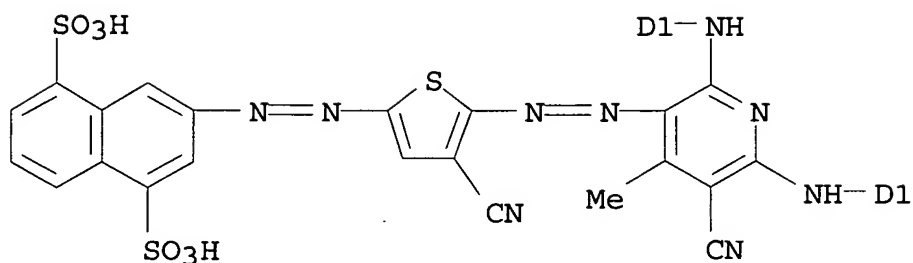
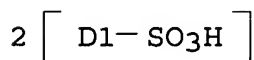
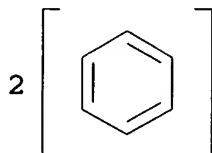
PAGE 2-A

●4 Li

RN 769168-17-4 HCAPLUS

CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



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● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00
 CC 42-12 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 41
 ST inkjet ink image quality preservability **recording**
 betaine
 IT 64346-41-4 **769168-16-3 769168-17-4**
 (black dye; production of ink-jet ink with high image quality
 and image preservability)

L12 ANSWER 7 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:873739 HCAPLUS
 DOCUMENT NUMBER: 141:372789
 TITLE: Ink jet **recording** method in which
 ink drop diameter is controlled

INVENTOR(S): Okino, Yoshiharu; Kaneshiro, Kazuaki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 122 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| JP 2004291346 | A2 | 20041021 | JP 2003-85834 |

2003

0326

PRIORITY APPLN. INFO.:

JP 2003-85834

2003

0326

AB The method satisfies $B < 2 + A$ (A = diameter of an ink droplet just after it is deposited on a **recording** material; B = diameter of an ink droplet after the material is aged at 25° and 50% RH for 24 hs and further at 25° and 90% RH for 72 hs; the diameter is circular reduced diameter using half d. of the maximum d. in d. distribution). It shows improved ink jet stability and image stability, preventing bleeding at high humidity.

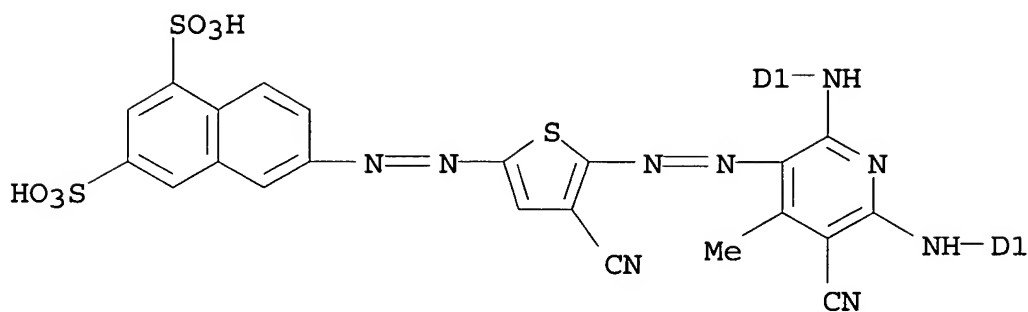
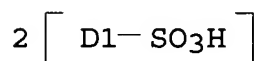
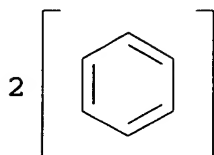
IT 675594-63-5

(dye; ink droplet diameter-controlled ink jet printing method using ink containing oxidation potential-controlled dye)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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● 4 Li

IC ICM B41M005-00
 ICS B41J002-01; C09D011-00
 CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT 15999-06-1 473465-85-9 578729-33-6 608101-10-6
 675594-63-5
 (dye; ink droplet diameter-controlled ink jet printing method
 using ink containing oxidation potential-controlled dye)

L12 ANSWER 8 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:873736 HCAPLUS
 DOCUMENT NUMBER: 141:372788
 TITLE: Ink jet **recording** method and

INVENTOR(S): material with controlled ink absorption
 Okino, Yoshiharu; Kaneshiro, Kazuaki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 121 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| JP 2004291338 | A2 | 20041021 | JP 2003-85461 |

2003

0326

PRIORITY APPLN. INFO.:

JP 2003-85461

2003

0326

AB The method comprises jetting ink in which ≥ 1 dye with oxidation potential ≥ 1.0 V is solubilized or dispersed in aqueous medium on a ink absorbing material satisfying $A \geq B$ [A = ink absorption (mL/m²) of the material; B = ink volume (mL/m²) when maximum deposited ink (mL/m²) in a container with 30 mm opening is dried at 40° and 10% RH for 150 hs]. The material satisfying the above conditions is also claimed. The method shows improved ink jet stability and beading prevention, providing images with improved heat, light, and ozone stability.

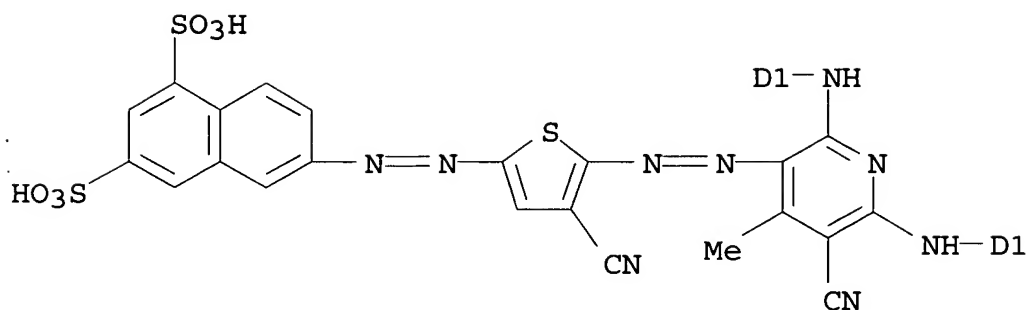
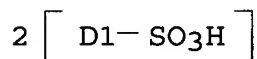
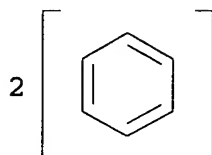
IT 675594-63-5

(dye; aqueous ink containing oxidation potential-controlled dye for ink-jet printing)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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PAGE 2-A

●4 Li

IC ICM B41M005-00
 ICS B41J002-01; C09D011-00
 CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT Ink-jet printing
 Ink-jet **recording** sheets
 (ink deposition and ink absorbing amount-controlled ink jet
 printing method)
 IT 15999-06-1 473465-85-9 578729-33-6 608101-10-6
675594-63-5
 (dye; aqueous ink containing oxidation potential-controlled
 dye for
 ink-jet printing)

L12 ANSWER 9 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:802001 HCAPLUS
DOCUMENT NUMBER: 141:315986
TITLE: Ink-jet **recording** ink set with
excellent image preservability and high image
quality
INVENTOR(S): Ozawa, Takashi; Taguchi, Toshiki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 82 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------------------------|----------------------|----------------------------|----------------------------------|
| ----- ----- US 2004187734 | ----- ----- A1 | ----- ----- 20040930 | ----- ----- US 2004-806453 |
| 2004 | | | |
| 0323 | | | |
| JP 2004307819 | A2 | 20041104 | JP 2004-8134 |
| 2004 | | | |
| 0115 | | | |
| PRIORITY APPLN. INFO.: | | | JP 2003-82798 A |
| 2003 | | | |
| 0325 | | | |
| | | | JP 2004-8134 A |
| 2004 | | | |
| 0115 | | | |

OTHER SOURCE(S): MARPAT 141:315986
AB Title ink-jet **recording** ink set comprises at least two
inks, wherein each of the inks contains at least one dye having
an
anionic group, and even when any two inks in the ink set are

mixed, precipitation of the dye does not occur. The ink set is an ink set

containing yellow, magenta, cyan, and black ink compns.

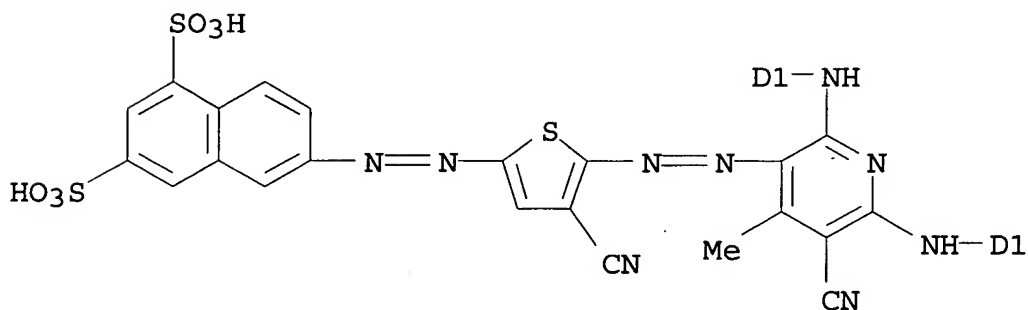
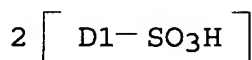
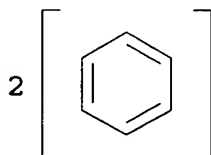
IT 675594-63-5 769168-16-3 769168-17-4

(black dye; production of ink-jet **recording** ink set with excellent image preservability and high image quality)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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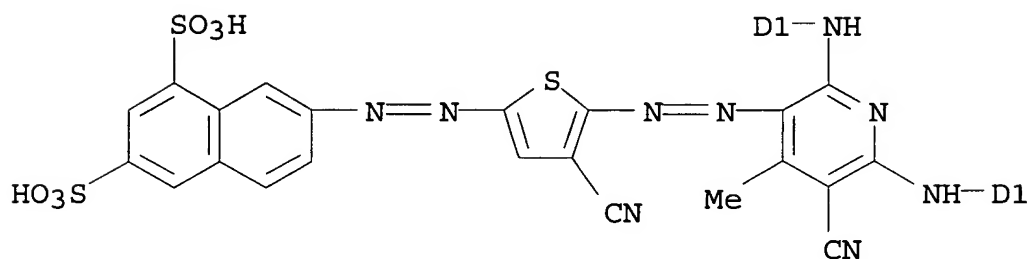
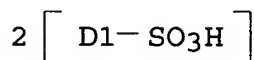
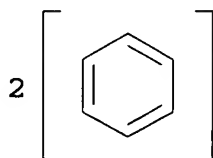
● 4 Li

RN 769168-16-3 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 7-[[4-cyano-5-[[5-cyano-4-methyl-

2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-,
tetralithium salt (9CI) (CA INDEX NAME)

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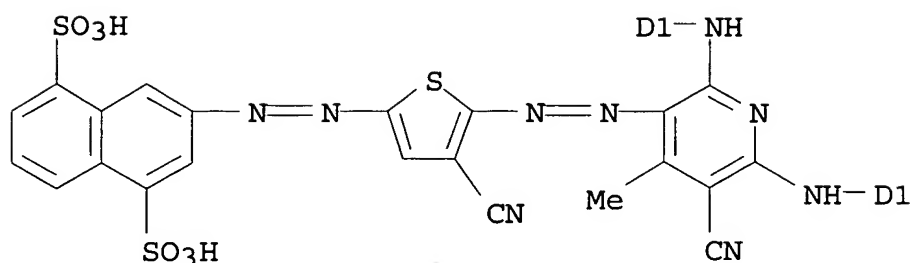
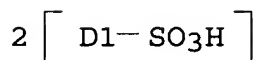
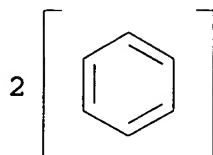


PAGE 2-A

●4 Li

RN 769168-17-4 HCAPLUS
CN 1,5-Naphthalenedisulfonic acid, 3-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-,
tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-02
ICS B41J002-01
NCL 106031270; 106031490; 106031480; 106031520; 106031510; 347100000
CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41
ST ink jet **recording** set image preservability quality
IT Inks
(jet-printing; production of ink-jet **recording** ink set
with excellent image preservability and high image quality)
IT Cyanine dyes
(phthalocyanine; production of ink-jet **recording** ink set
with excellent image preservability and high image quality)
IT Azo dyes
(production of ink-jet **recording** ink set with excellent
image preservability and high image quality)
IT 675594-63-5 765314-87-2 769168-16-3

769168-17-4

(black dye; production of ink-jet **recording** ink set with excellent image preservability and high image quality)

IT 578729-33-6 646535-76-4

(cyan dye; production of ink-jet **recording** ink set with excellent image preservability and high image quality)

IT 765314-85-0

(magenta dye; production of ink-jet **recording** ink set with excellent image preservability and high image quality)

IT 765314-86-1 765314-88-3 765314-89-4

(yellow dye; production of ink-jet **recording** ink set with excellent image preservability and high image quality)

L12 ANSWER 10 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:796338 HCAPLUS

DOCUMENT NUMBER: 141:297477

TITLE: Ink-jet ink set with high quality and excellent storage durability and ink-jet **recording** method

INVENTOR(S): Taguchi, Toshiki; Ogawa, Manabu

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 119 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|------------|------|----------|-----------------|
| EP 1462493 | A1 | 20040929 | EP 2004-7463 |

2004

0326

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK

JP 2004307832 A2 20041104 JP 2004-65660

2004

0309

US 2004187736 A1 20040930 US 2004-808464

2004

0325

PRIORITY APPLN. INFO.:

JP 2003-88356

A

2003

0327

JP 2004-65660

A

2004

0309

AB Title ink set comprises inks each obtained by containing at least one

dye (e.g., phthalocyanine dyes, azo dyes) in an aqueous medium, wherein the constituent inks all are an ink containing at least

one

dye having an oxidation potential more pos. than 1.0 V (vs SCE).

The

ratio k_1/k_2 of the fading rate constant (k_1) of an image drawn by using the ink alone to the fading rate constant (k_2) of a mixed color image drawn by using all constituent inks constituting the ink set in equivalent amts. with the same d. measurement light

as in

the measurement of k_1 is 0.7 to 1.3 in all inks. The ink-jet ink set is capable of giving an image having good image quality and excellent image fastness regardless of the color of image, such

as

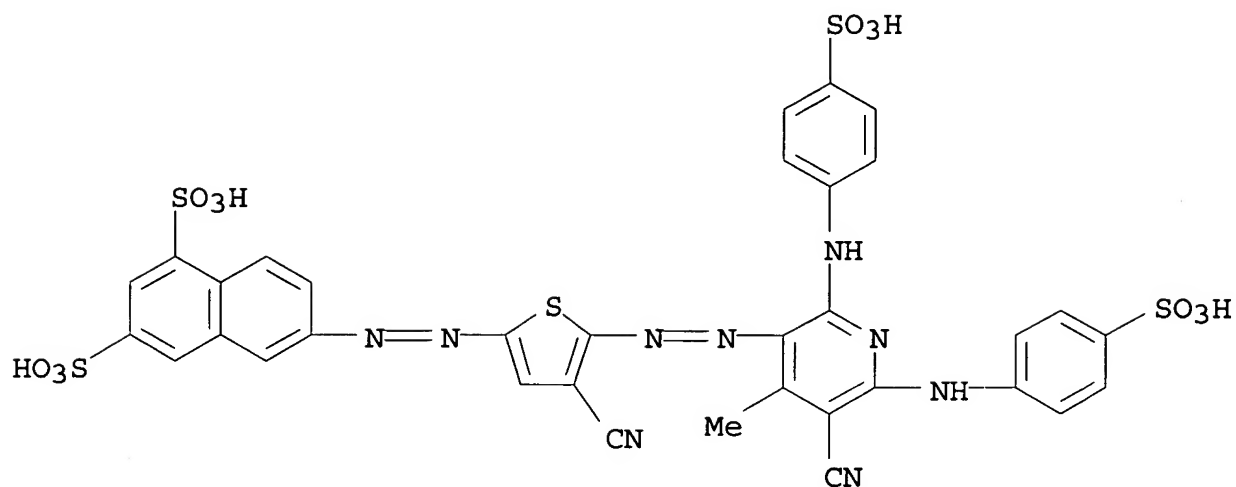
aging stability, light fastness and water resistance, and an inkjet image **recording** method using the ink set are provided.

IT 764662-87-5 773895-75-3

(black dye; ink set and inkjet **recording** method)

RN 764662-87-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)



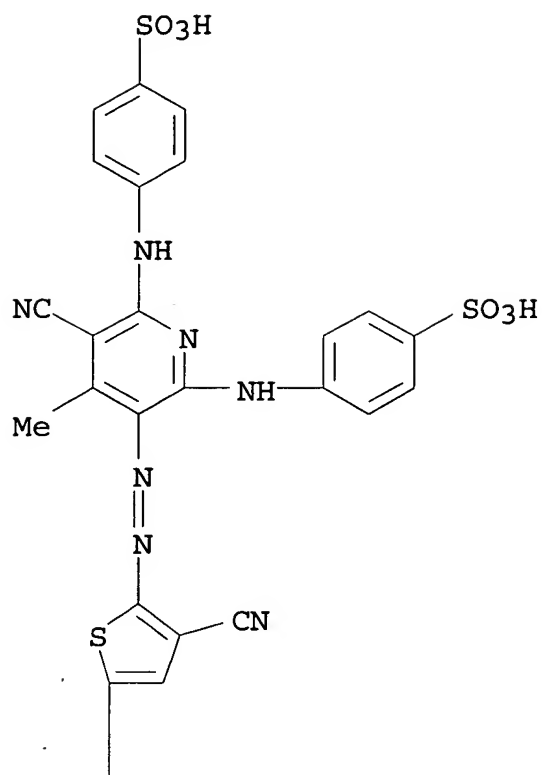
● 4 Li

RN 773895-75-3 HCAPLUS

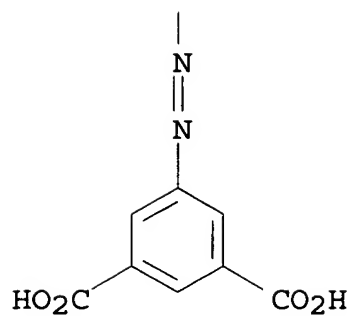
CN 1,3-Benzenedicarboxylic acid,

5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(4-sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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● 4 Li

IC ICM C09D011-00

USHA SHRESTHA EIC 1700 REM 4B28

CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 41
ST ink jet set **recording** phthalocyanine azo dye storage
durability
IT Azo dyes
Ink-jet printing
(ink set and inkjet **recording** method)
IT Inks
(jet-printing; ink set and inkjet **recording** method)
IT Cyanine dyes
(phthalocyanine; ink set and inkjet **recording** method)
IT 764662-87-5 773895-75-3
(black dye; ink set and inkjet **recording** method)
IT 51481-19-7 578729-33-6
(cyan dye; ink set and inkjet **recording** method)
IT 646535-76-4
(cyan dye; production of ink-jet ink set with high quality and
excellent storage durability and ink-jet **recording**
method)
IT 764664-96-2 764666-64-0
(magenta dye; ink set and inkjet **recording** method)
IT 764664-98-4 764664-99-5 764666-65-1
(yellow dye; ink set and inkjet **recording** method)

L12 ANSWER 11 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:796333 HCAPLUS
DOCUMENT NUMBER: 141:315975
TITLE: Ink-jet ink set containing betaine
surfactant,
and ink-jet **recording** method
INVENTOR(S): Taguchi, Toshiki; Ogawa, Manabu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd.; Japan
SOURCE: Eur. Pat. Appl., 130 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| ----- | | | |
| EP 1462490 | A1 | 20040929 | EP 2004-7065 |

2004

0324

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, PL, SK

US 2004200385 A1 20041014 US 2004-807442

2004

0324

PRIORITY APPLN. INFO.:

JP 2003-80221 A

2003

0324

JP 2003-404494 A

2003

1203

JP 2004-65356 A

2004

0309

OTHER SOURCE(S): MARPAT 141:315975

AB Title ink-jet ink set comprises at least two inks, wherein at least one ink contains a betaine compound (e.g., lauryldimethylaminoacetate betaine) and at least one other ink contains a nonionic surfactant (e.g., Olfine E 1010). The ink showed high durability of an image and excellent image qualities in a high d. part under highly humid conditions.

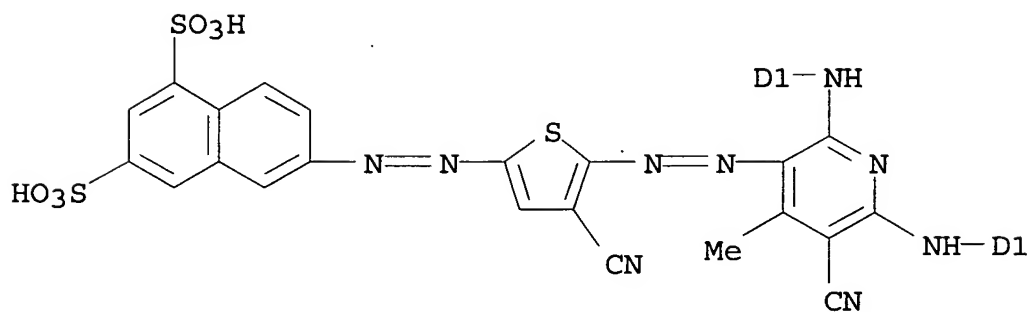
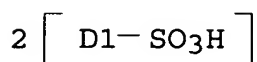
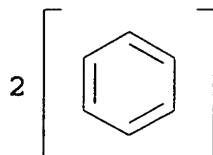
IT 675594-63-5

(black dye; production of ink-jet ink set containing betaine surfactant, and ink-jet **recording** method)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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● 4 Li

IC ICM C09D011-00
 CC 42-12 (Coatings, Inks, and Related Products)
 ST ink jet set betaine nonionic surfactant **recording**
 IT Inks
 (jet-printing; production of ink-jet ink set containing
 betaine
 surfactant, and ink-jet **recording** method)
 IT Surfactants
 (nonionic; production of ink-jet ink set containing betaine
 surfactant,
 and ink-jet **recording** method)
 IT Dyes
 Ink-jet printing

(production of ink-jet ink set containing betaine surfactant,
and
ink-jet **recording** method)
IT Surfactants
(zwitterionic; production of ink-jet ink set containing
betaine
surfactant, and ink-jet **recording** method)
IT 675594-63-5 764657-30-9
(black dye; production of ink-jet ink set containing betaine
surfactant, and ink-jet **recording** method)
IT 646535-76-4
(cyan dye; production of ink-jet ink set containing betaine
surfactant,
and ink-jet **recording** method)
IT 646535-74-2
(magenta dye; production of ink-jet ink set containing betaine
surfactant, and ink-jet **recording** method)
IT 683-10-3 9014-85-1, Olfine E 1010 141321-68-8
(surfactant; production of ink-jet ink set containing betaine
surfactant, and ink-jet **recording** method)
IT 586407-70-7
(yellow dye; production of ink-jet ink set containing betaine
surfactant, and ink-jet **recording** method)

L12 ANSWER 12 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:651555 HCAPLUS
DOCUMENT NUMBER: 141:192029
TITLE: Ink-jet printing black inks with good color
balance and resistance to fading
INVENTOR(S): Taguchi, Toshiki; Wachi, Naotaka
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 80 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| DATE | PATENT NO. | KIND | DATE | APPLICATION NO. |
|-------|---------------|------|----------|-----------------|
| ----- | ----- | ---- | ----- | ----- |
| ----- | JP 2004225004 | A2 | 20040812 | JP 2003-17621 |

2003

0127

PRIORITY APPLN. INFO.:

JP 2003-17621

2003

0127

OTHER SOURCE(S): MARPAT 141:192029

AB The inks contain a mixture of ≥ 2 dyes in aqueous solution or dispersion, with a λ_{\max} at 500-700 nm and a half width value at the λ_{\max} of >100 nm or <100 nm, resp., where the inks show an ozone-induced fading speed constant (k_{vis}) of $<5.0 \times 10^{-2}/\text{h}$. Azo dyes and phthalocyanine dyes were **disclosed** which are suitable for the ink-jet printing black ink.

IT 675594-63-5 675594-64-6

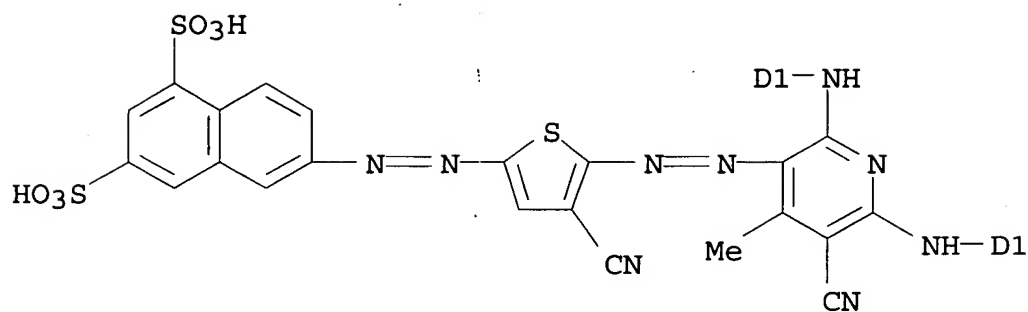
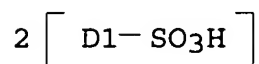
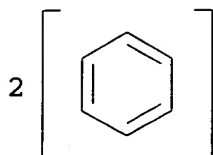
(dyes; mixed dyes for manufacture of ink-jet printing black inks

with good color balance and resistance to fading)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

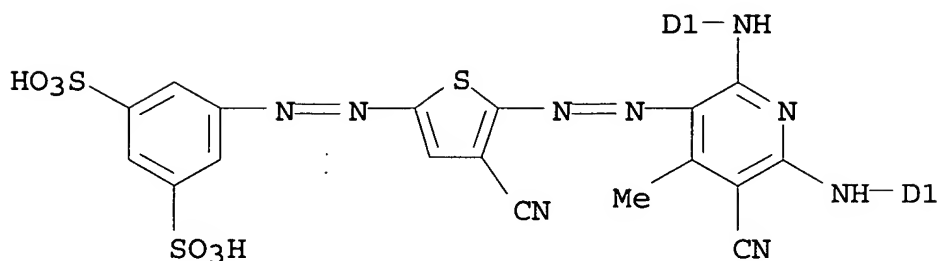
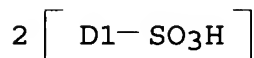
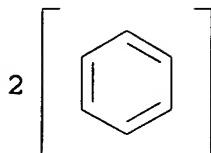


PAGE 2-A

● 4 Li

RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00; C09B029-48; C09B031-153; C09B033-06;
 C09B047-20; C09B047-24; C09B047-26
 CC 42-12 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 41
 IT 64346-41-4 586407-70-7 **675594-63-5 675594-64-6**
 (dyes; mixed dyes for manufacture of ink-jet printing black
 inks
 with good color balance and resistance to fading)

L12 ANSWER 13 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:568206 HCAPLUS
 DOCUMENT NUMBER: 141:107750
 TITLE: Coloring composition and ink-jet
recording method
 INVENTOR(S): Chino, Tomohiro; Fujiwara, Toshiki; Takasaki,

PATENT ASSIGNEE(S): Masaru
SOURCE: Fuji Photo Film Co., Ltd., Japan
Eur. Pat. Appl., 70 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| EP 1437388 | A1 | 20040714 | EP 2004-276 |
| 2004 | | | |
| 0108 | | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | |
| US 2004187232 | A1 | 20040930 | US 2004-752001 |

2004

0107

PRIORITY APPLN. INFO.:

JP 2003-2408

A

2003

0108

JP 2003-360370

A

2003

1021

JP 2003-432210

A

2003

1226

OTHER SOURCE(S): MARPAT 141:107750

AB The invention provides a water-soluble ink capable of forming an image having good color hue and high fastness in various use and

environmental conditions, which comprises a coloring composition comprising a disazo dye of $A_1N=NA_2N=NA_3$ (A_1, A_2, A_3 = aromatic group

which may be substituted or a heterocyclic group which may be substituted, A_1 and A_3 each is a monovalent group and A_2 is a divalent group) and at least one other dye having a specific structure.

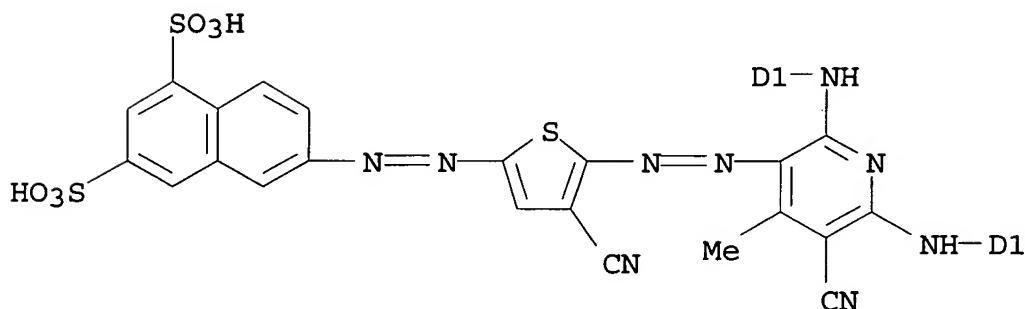
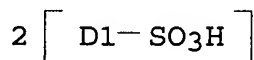
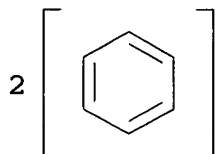
IT 615558-67-3

(dye; dye compns. for color ink-jet inks)

RN 615558-67-3 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-
(9CI)

(CA INDEX NAME)



IC ICM C09B067-22

ICS C09D011-00

CC 42-12 (Coatings, Inks, and Related Products)

Section cross-reference(s): 41

IT 25712-08-7 615558-67-3 721189-34-0

(dye; dye compns. for color ink-jet inks)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS
AVAILABLE
IN THE RE FORMAT

L12 ANSWER 14 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:568205 HCAPLUS
DOCUMENT NUMBER: 141:107627
TITLE: Azo dyes for color compositions for ink-jet
ink, ink jet **recording** method and
color toner composition using them
INVENTOR(S): Yabuki, Yoshiharu; Chino, Tomohiro; Fujiwara,
Toshiki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 36 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| EP 1437387 | A1 | 20040714 | EP 2004-77 |

2004

0105

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, SK
JP 2004231945 A2 20040819 JP 2003-426629

2003

1224

PRIORITY APPLN. INFO.: JP 2003-2330 A

2003

0108

OTHER SOURCE(S): MARPAT 141:107627
AB A coloring composition such as printing ink for ink jet printing
or the
like or electrophotog. color toner is provided, which can give a

colored image or material excellent in the color hue and fastness,

and also provide an ink jet **recording** method capable of forming an image having good color hue and high fastness to light and active gases in the environment, particularly ozone gas. The color compns. contain an azo dye having a specific structure containing an alkyl chain having 4 to more carbon atoms and not containing

an ionic hydrophilic group. Thus, coupling diazotized 2-amino-3-cyano-5-(phenylazo)thiophene with 2,6-bis(4-octylanilino)-3-cyano-4-methylpyridine gave a dye having mass 765 and λ_{\max} 611.0 nm in chloroform.

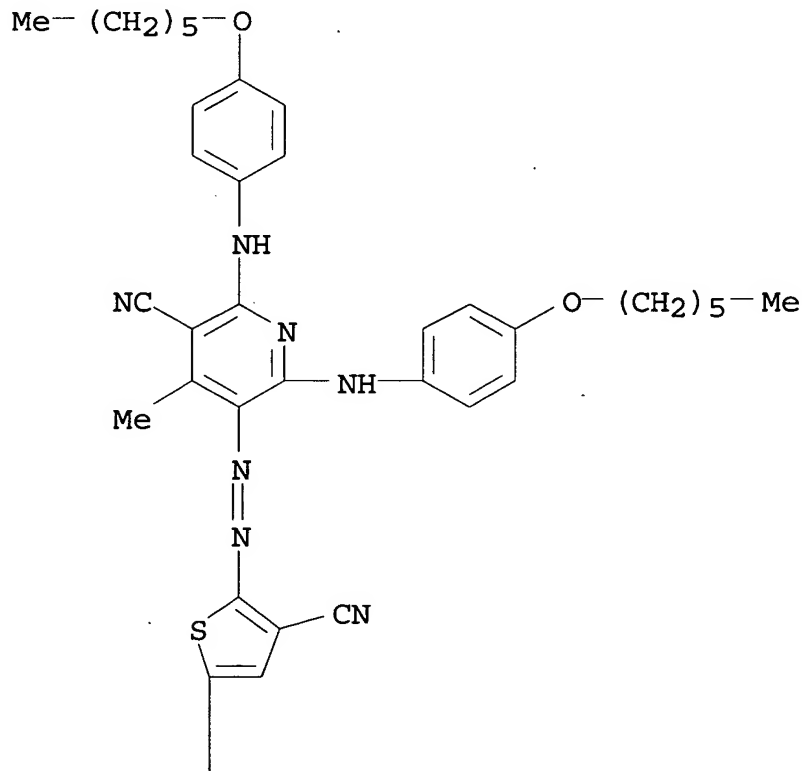
IT 719284-71-6 719284-74-9 719284-77-2
719284-80-7 719284-83-0

(dye; azo dyes for color compns. for ink-jet ink, ink-jet **recording** method and color toner composition using them)

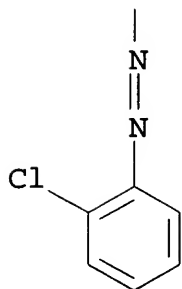
RN 719284-71-6 HCAPLUS

CN 3-Pyridinecarbonitrile, 5-[[5-[(2-chlorophenyl)azo]-3-cyano-2-thienyl]azo]-2,6-bis[[4-(hexyloxy)phenyl]amino]-4-methyl- (9CI)
(CA INDEX NAME)

PAGE 1-A

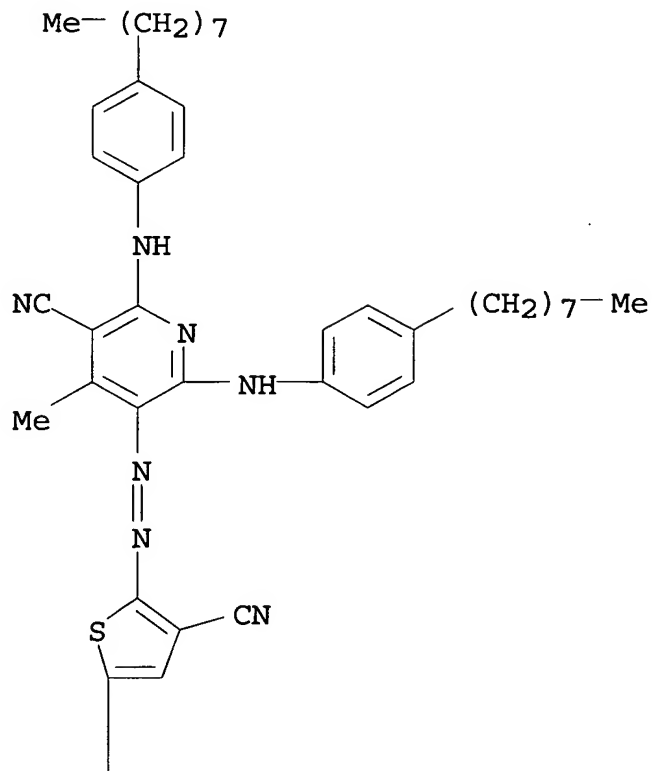


PAGE 2-A

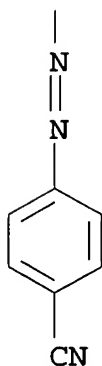


RN 719284-74-9 HCAPLUS
 CN 3-Pyridinecarbonitrile, 5-[[3-cyano-5-[(4-cyanophenyl)azo]-2-thienyl]azo]-4-methyl-2,6-bis[(4-octylphenyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A

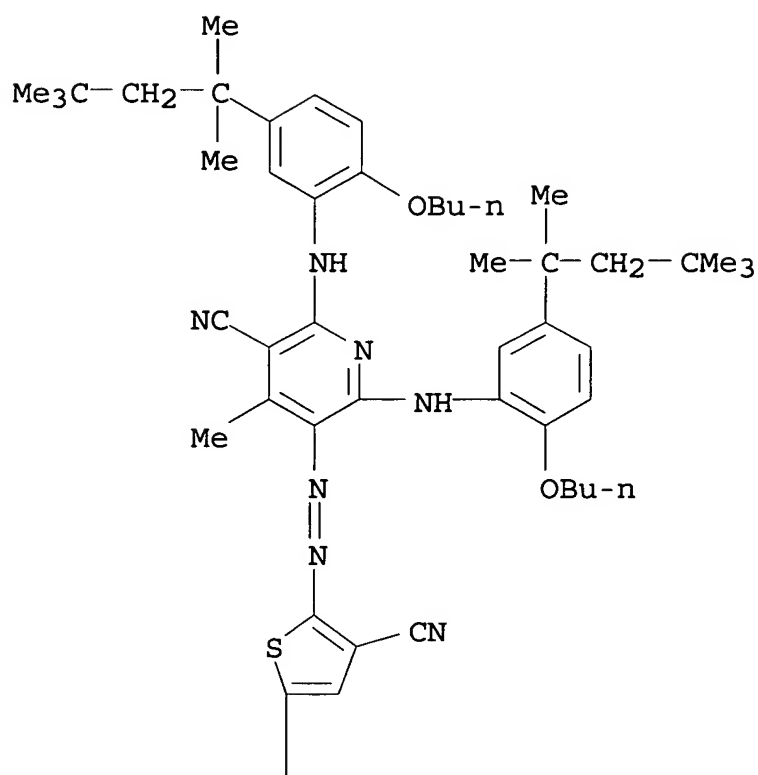


PAGE 2-A

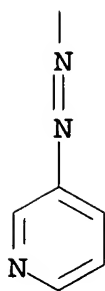


RN 719284-77-2 HCAPLUS
CN 3-Pyridinecarbonitrile, 2,6-bis[[2-butoxy-5-(1,1,3,3-tetramethylbutyl)phenyl]amino]-5-[[3-cyano-5-(3-pyridinylazo)-2-thienyl]azo]-4-methyl- (9CI) (CA INDEX NAME)

PAGE 1-A

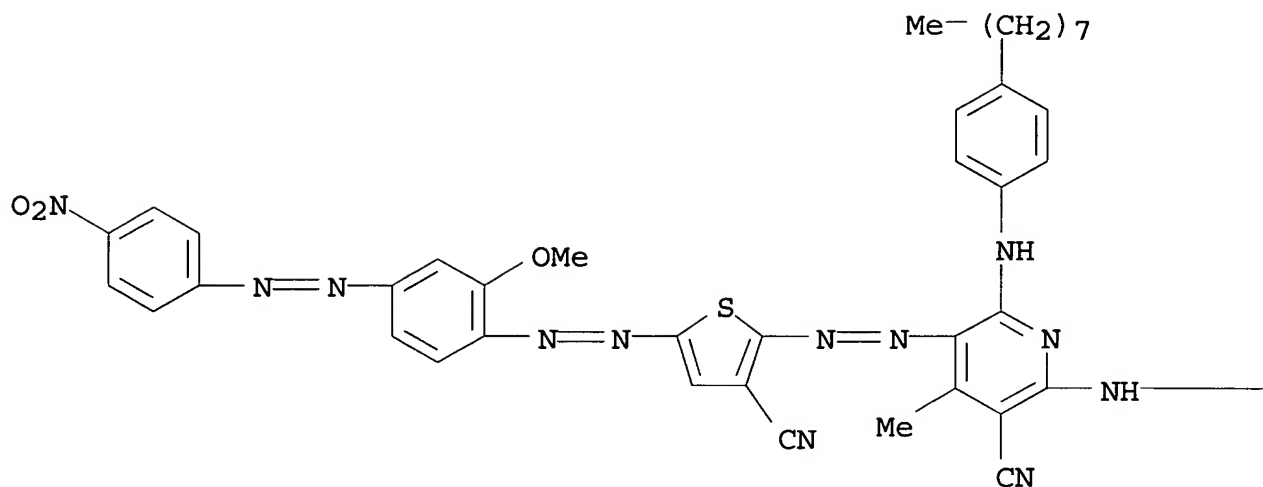


PAGE 2-A

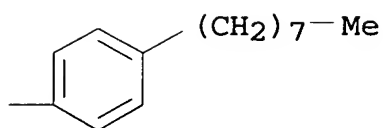


RN 719284-80-7 HCAPLUS
 CN 3-Pyridinecarbonitrile, 5-[[[3-cyano-5-[[2-methoxy-4-[(4-nitrophenyl)azo]phenyl]azo]-2-thienyl]azo]-4-methyl-2,6-bis[(4-octylphenyl)amino]-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

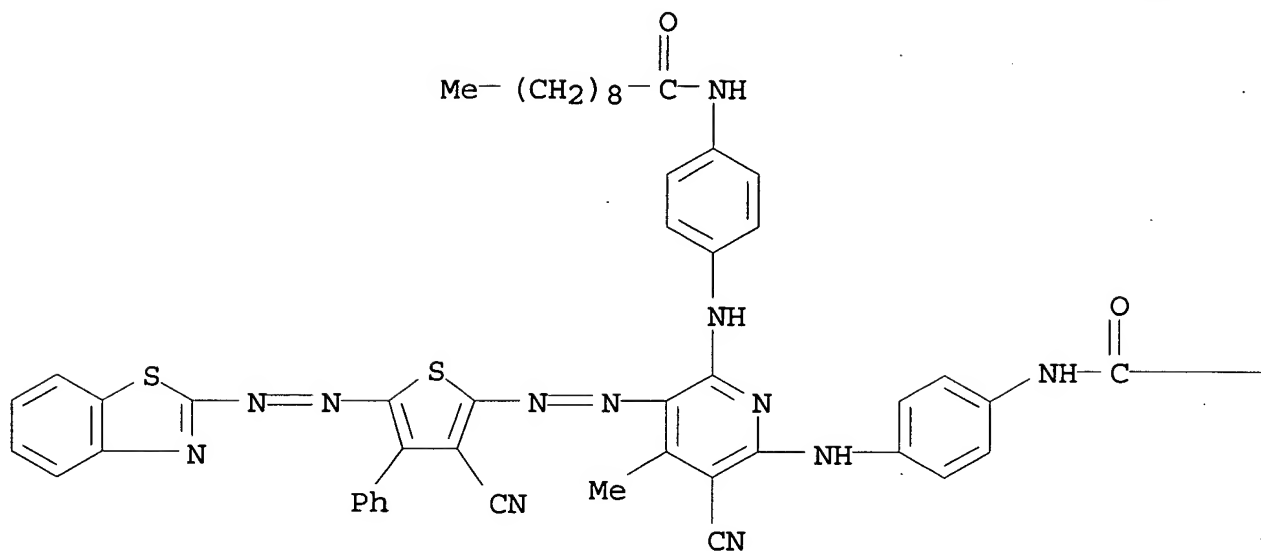


RN 719284-83-0 HCAPLUS

CN Decanamide,

N,N'-[[3-[[5-(2-benzothiazolylazo)-3-cyano-4-phenyl-2-thienyl]azo]-5-cyano-4-methyl-2,6-pyridinediyl]bis(imino-4,1-phenylene)]bis- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (CH₂)₈—Me

IT 719284-65-8 719284-68-1

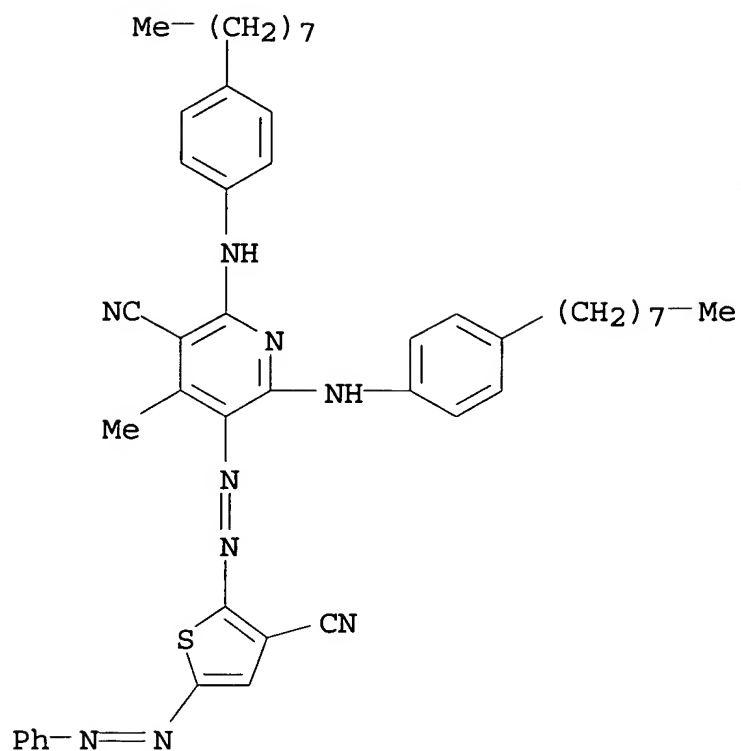
(dyes; azo dyes for color compns. for ink-jet ink, ink-jet
recording method and color toner composition using them)

RN 719284-65-8 HCAPLUS

CN 3-Pyridinecarbonitrile,

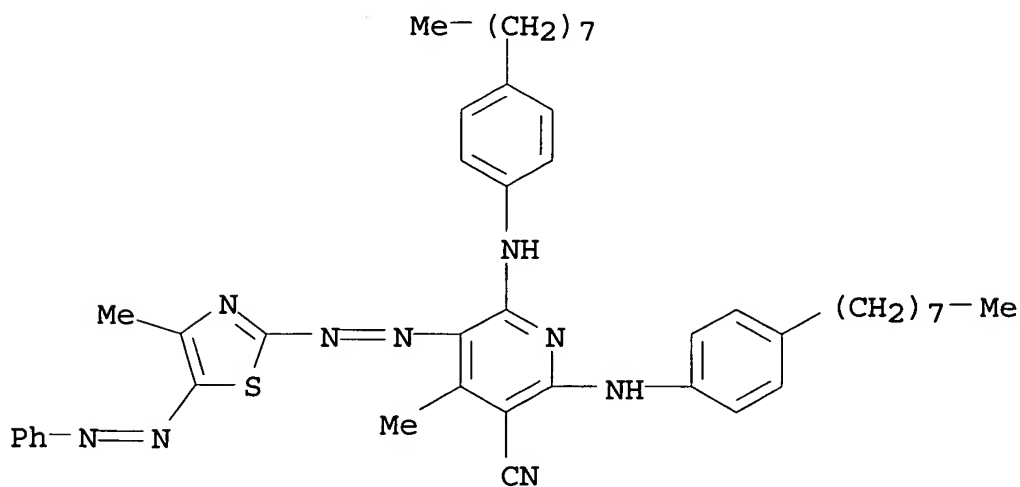
5-[[3-cyano-5-(phenylazo)-2-thienyl]azo]-4-

methyl-2,6-bis[(4-octylphenyl)amino]- (9CI) (CA INDEX NAME)



RN 719284-68-1 HCAPLUS

CN 3-Pyridinecarbonitrile, 4-methyl-5-[[4-methyl-5-(phenylazo)-2-thiazolyl]azo]-2,6-bis[(4-octylphenyl)amino]- (9CI) (CA INDEX NAME)



IC ICM C09B031-147
ICS C09B031-153; C09B031-28; C09D011-00
CC 41-3 (Dyes, Organic Pigments, Fluorescent Brighteners, and
Photographic Sensitizers)
Section cross-reference(s): 42
IT Azo dyes
Electrophotographic toners
(azo dyes for color compns. for ink-jet ink, ink-jet
recording method and color toner composition using them)
IT Inks
(jet-printing; azo dyes for color compns. for ink-jet ink,
ink-jet **recording** method and color toner composition using
them)
IT 83749-49-9, 2-Amino-3-cyano-5-(phenylazo)thiophene
(azo dyes for color compns. for ink-jet ink, ink jet
recording method and color toner composition using them)
IT 4856-80-8, 2-Amino-4-methyl-5-(phenylazo)thiazole 469898-05-3
(azo dyes for color compns. for ink-jet ink, ink-jet
recording method and color toner composition using them)
IT 719284-71-6 719284-74-9 719284-77-2
719284-80-7 719284-83-0
(dye; azo dyes for color compns. for ink-jet ink, ink-jet
recording method and color toner composition using them)
IT 719284-65-8 719284-68-1
(dyes; azo dyes for color compns. for ink-jet ink, ink-jet
recording method and color toner composition using them)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE

IN THE RE FORMAT

L12 ANSWER 15 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:433037 HCAPLUS
DOCUMENT NUMBER: 140:425093
TITLE: Water-based black ink-jet inks containing
black dyes with good ink ejection and high
print image durability
INVENTOR(S): Taguchi, Toshiki; Ishizuka, Takahiro
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 51 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|------------|------|------|-----------------|
| DATE | | | |

JP 2004149558

A2

20040527

JP 2002-313057

2002

1028

PRIORITY APPLN. INFO.:

JP 2002-313057

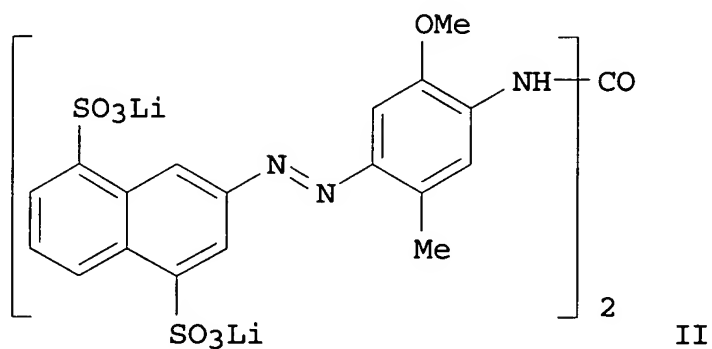
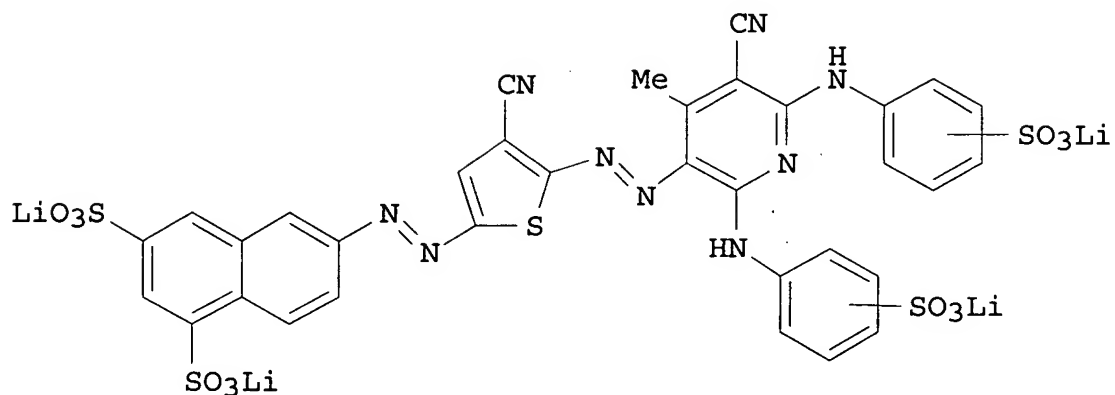
2002

1028

OTHER SOURCE(S):

MARPAT 140:425093

GI



AB The black inks contain, dissolved and/or dispersed in water-based media, ≥ 1 dyes having λ_{max} 500-700 nm and ≥ 100 -nm half value width in absorption spectrum of its dilute

solution standardized to absorbance to 1.0, show forced
discoloration rate index (kvis) $\leq 5.0 +$
 $10^{-2}/h$, wherein kvis is determined from a time required for
 reflective
 concentration (Dvis) to become 80% of the initial Dvis of a
 print image
 (JIS 2223 black square mark, 48 point, determined by using
 status A

filter) by using an O3 **discoloration** tester which
 constantly generates 5-ppm O3, and contain surfactants
 represented
 by the general formula $XC.tplbond.CCR21R22O(CH_2CH_2O)m1R23$ [R21,
 R22 = C1-18 alkyl; R23 = H, C1-6 alkyl, phenyl; X = H,
 CR24R25O(CH2CH2O)m2R26; R24, R25 = C1-18 alkyl; R26 = H, C1-6
 alkyl, phenyl; m1 + m2 = 0-100; when m1 = 0, R23 = H; when m2 =

0,
 R26 = H; when X = H, m1 = 1-100]. Thus, a water-based black ink
 contained black dyes I and II, Proxel, urea, benzotriazole,
 diethylene glycol monobutyl ether, glycerin, diethylene glycol,
 2-pyrrolidone, triethanolamine, and Surfynol STG (surfactant).

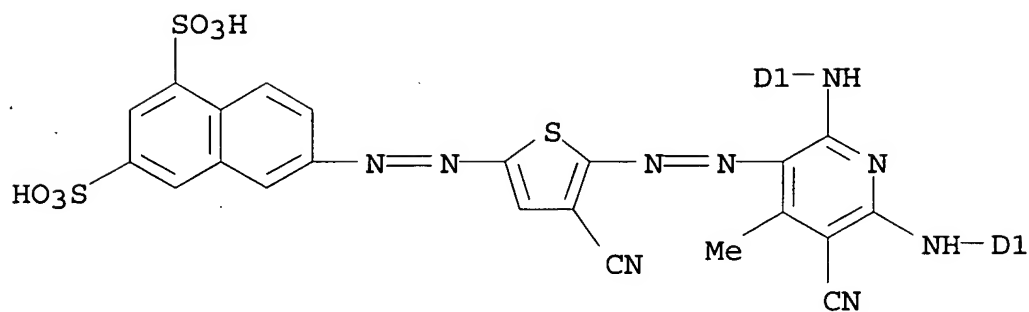
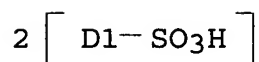
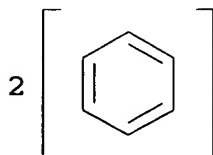
IT 675594-63-5 675594-64-6

(water-based black ink-jet inks containing black dyes with
 good
 color fastness)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-
 2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-,
 tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

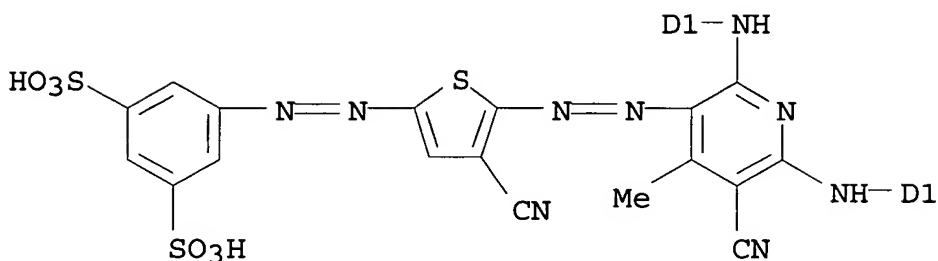
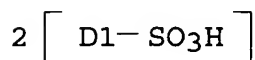
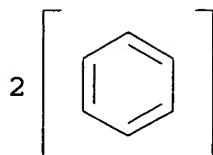


PAGE 2-A

● 4 Li

RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00; C09B029-42; C09B029-48
 CC 42-12 (Coatings, Inks, and Related Products)
 IT 64346-41-4 586407-70-7 **675594-63-5 675594-64-6**
 (water-based black ink-jet inks containing black dyes with
 good color fastness)

L12 ANSWER 16 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:433036 HCAPLUS
 DOCUMENT NUMBER: 140:425092
 TITLE: Water-based black ink-jet inks containing
 black dyes with good color fastness
 INVENTOR(S): Taguchi, Toshiki; Ishizuka, Takahiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.

DOCUMENT TYPE: CODEN: JKXXAF
LANGUAGE: Patent
FAMILY ACC. NUM. COUNT: Japanese
PATENT INFORMATION: 1

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| JP 2004149557 | A2 | 20040527 | JP 2002-313056 |

2002

1028

PRIORITY APPLN. INFO.:

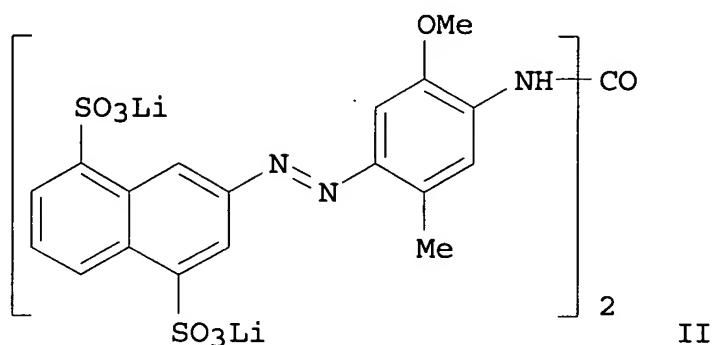
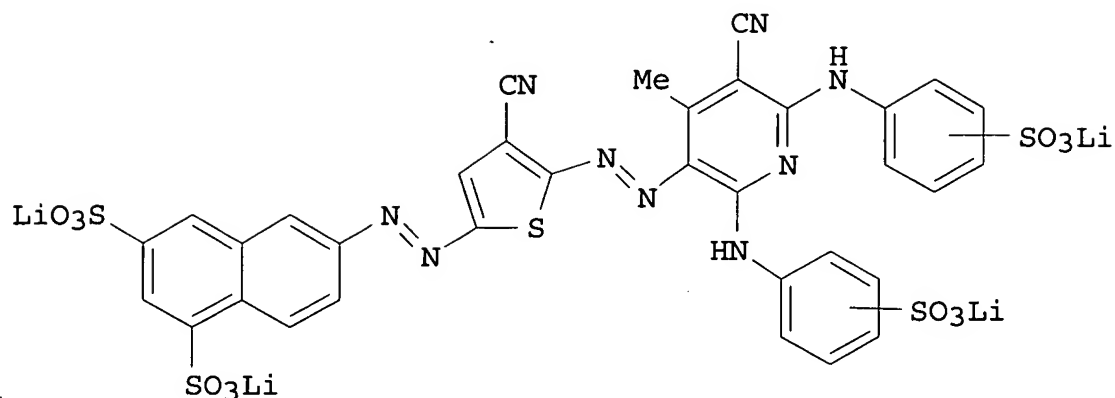
JP 2002-313056

2002

1028

OTHER SOURCE(S):
GI

MARPAT 140:425092



AB The black inks contain, dissolved and/or dispersed in water-based media, ≥ 1 dyes having λ_{max} 500-700 nm and ≥ 100 -nm half value width in absorption spectrum of its dilute solution standardized to absorbance to 1.0, show forced **discoloration** rate index (kvis) $\leq 5.0 + 10^{-2}/\text{h}$, wherein kvis is determined from a time required for reflective

concentration (Dvis) to become 80% of the initial Dvis of a print image

(JIS 2223 black square mark, 48 point, determined by using status A

filter) by using an O3 **discoloration** tester which constantly generates 5-ppm O3, and contain surfactants R21O(CH₂CH₂O)m₁H (R21 = C5-40 alkyl; m₁ = 2-40) and/or R22CO₂(CH₂CH₂O)m₂H (R22 = C5-40 alkyl; m₂ = 2-40). Thus, a water-based black ink contained black dyes I and II, Proxel,

urea,

benzotriazole, diethylene glycol monobutyl ether, glycerin, diethylene glycol, 2-pyrrolidone, triethanolamine, and Aerosol OT (surfactant).

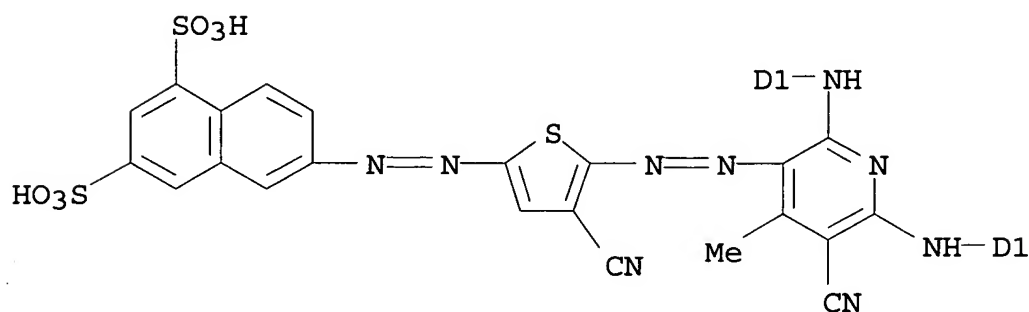
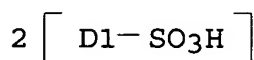
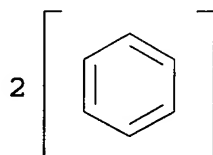
IT 675594-63-5 675594-64-6

good (water-based black ink-jet inks containing black dyes with color fastness)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



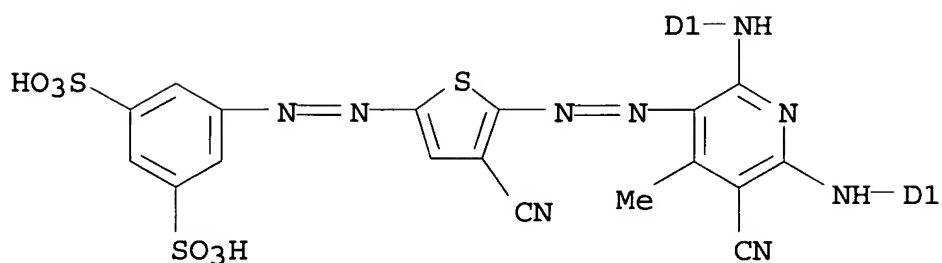
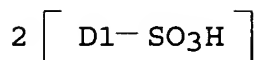
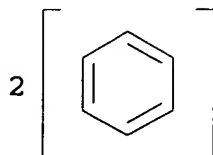
PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS

CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00; C09B031-147; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)
 IT 64346-41-4 586407-70-7 675594-63-5 675594-64-6
 (water-based black ink-jet inks containing black dyes with
 good color fastness)

L12 ANSWER 17 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:411645 HCAPLUS
 DOCUMENT NUMBER: 140:408374
 TITLE: Aqueous black inks for jet printing showing
 good storage/**discharge** stability and
 durability
 INVENTOR(S): Ogawa, Manabu
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 49 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| DATE | | | |
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| JP 2004143227 | A2 | 20040520 | JP 2002-307552 |

2002

1022

PRIORITY APPLN. INFO.:

JP 2002-307552

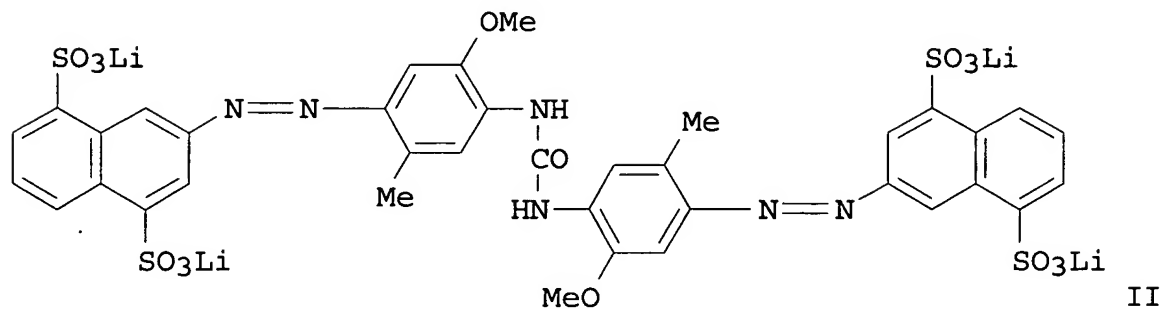
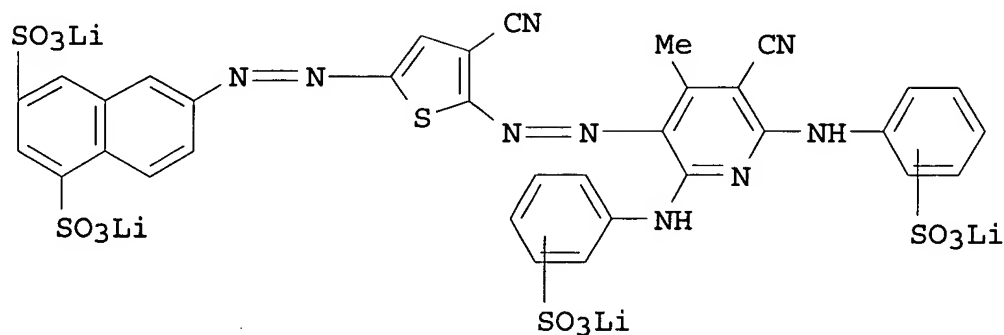
2002

1022

OTHER SOURCE(S):

MARPAT 140:408374

GI



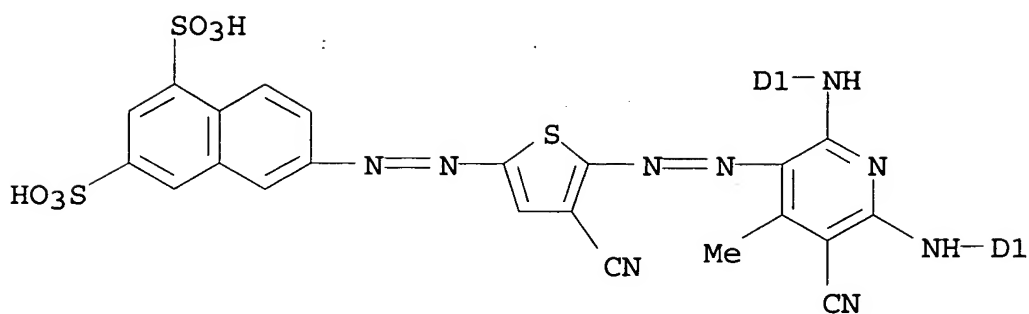
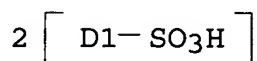
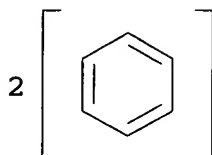
AB The aqueous black inks contain 0.005-50 g/l (nonionic) surfactants, dyes with λ_{\max} 500-700 nm and $W\lambda_{1/2} \geq 100$ nm ($W\lambda_{1/2}$ = half width of absorption spectrum as an solution standardized to absorbance 1.0), and optionally other dyes with λ_{\max} 350-500 nm, where ≥ 1 of the dyes satisfy oxidation potential (E_{ox}) > 1.0 V (vs. SCE). The inks satisfy $k_{vis} \leq 5.0 + 10^{-2} \text{ h}^{-1}$ [k_{vis} = ozone-forced fading rate constant of printed 48-point square mark (JIS 2223); test method is described] and/or $R \leq 1.2$ [R = ratio of the maximum and the min. value chosen from k_R , k_G , and k_B ; k_R , k_G , and k_B = ozone-forced fading rate constant based on cyan, magenta, and yellow reflection concentration, resp., measured as above]. Thus, a black ink containing I (λ_{\max} 589 nm; $W\lambda_{1/2}$ 125 nm; $E_{ox} > 1.0$), II (λ_{\max} 462 nm; $E_{ox} > 1.0$), and 10 g/l Surfynol STG (surfactant) was printed on paper in good **discharge** stability to give an image, showing high resistance to heat, light, and ozone treatment.

IT 675594-63-5 675594-64-6
(dyes; aqueous jet-printing inks containing black azo dyes and surfactants, showing good storage/**discharge** stability, and forming highly durable images)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

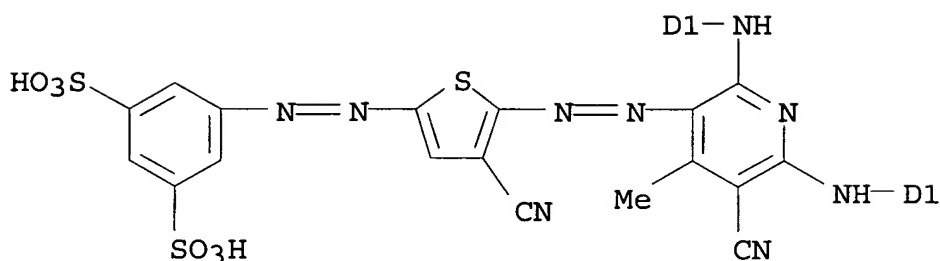
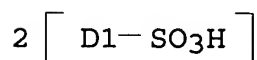
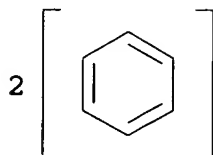


PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 Surfactants
 (aqueous jet-printing inks containing black azo dyes and
 surfactants,
 showing good storage/**discharge** stability, and forming
 highly durable images)
 IT Polyoxyalkylenes, uses
 (esters, surfactants; aqueous jet-printing inks containing
 black azo
 dyes and surfactants, showing good storage/**discharge**
 stability, and forming highly durable images)
 IT Polyoxyalkylenes, uses
 (ether with tetraalkyl 2-butyne-1,4-diol, nonionic
 surfactants;

aqueous jet-printing inks containing black azo dyes and surfactants,

showing good storage/**discharge** stability, and forming highly durable images)

IT Inks

(jet-printing, water-thinned, black; aqueous jet-printing inks containing black azo dyes and surfactants, showing good storage/

discharge stability, and forming highly durable images)

IT Surfactants

(nonionic; aqueous jet-printing inks containing black azo dyes and

surfactants, showing good storage/**discharge** stability, and forming highly durable images)

IT 64346-41-4 586407-70-7 675594-63-5 675594-64-6

(dyes; aqueous jet-printing inks containing black azo dyes and surfactants, showing good storage/**discharge** stability, and forming highly durable images)

IT 110-65-6D, 2-Butyne-1,4-diol, tetraalkyl derivs., ether with polyethylene glycol 25322-68-3D, Polyethylene glycol, ether with

tetraalkyl 2-butyne-1,4-diol 443873-90-3

(nonionic surfactants; aqueous jet-printing inks containing black azo

dyes and surfactants, showing good storage/**discharge** stability, and forming highly durable images)

IT 494840-96-9, Surfynol STG

(surfactants; aqueous jet-printing inks containing black azo dyes and

surfactants, showing good storage/**discharge** stability, and forming highly durable images)

L12 ANSWER 18 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:411479 HCAPLUS

DOCUMENT NUMBER: 140:408369

TITLE: Durable black ink- and cellular absorbant-containing cartridges (sets) with good **discharge** stability and jet-printing process therewith

INVENTOR(S): Taguchi, Toshiki; Okino, Yoshiharu

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 46 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| JP 2004142247 | A2 | 20040520 | JP 2002-309703 |

2002

1024

PRIORITY APPLN. INFO.:

JP 2002-309703

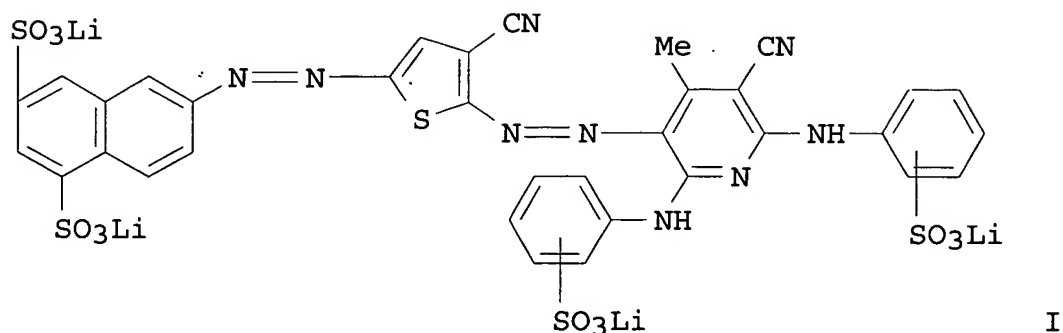
2002

1024

OTHER SOURCE(S):

MARPAT 140:408369

GI



AB The cartridges contain black inks satisfying $k_{vis} \leq 5.0 + 10^{-2} h^{-1}$ [k_{vis} = ozone-forced fading rate constant of printed 48-point square mark (JIS 2223); test method is described]

and ink absorbers comprising thermally melting polyurethane foams prepared by condensation of isocyanates and polyols. The black inks

contain aqueous media-dissolved/dispersed dyes [e.g.,

A(N:NBm)nN:NC

(A, B, C = aromatic or heterocyclic group; m, n ≥ 0)

satisfying λ_{max} 500-700 nm and $W\lambda_{1/2} \geq 100$ nm

($W\lambda_{1/2}$ = half width of absorption spectrum as an solution

standardized to absorbance 1.0). Thus, a black ink containing I

(λ_{max} 589 nm; $W\lambda_{1/2}$ 125 nm) was set into a

polyurethane sponge-equipped cartridge and printed on paper in good **discharge** stability to give an image, showing high resistance to heat, light, and ozone treatment.

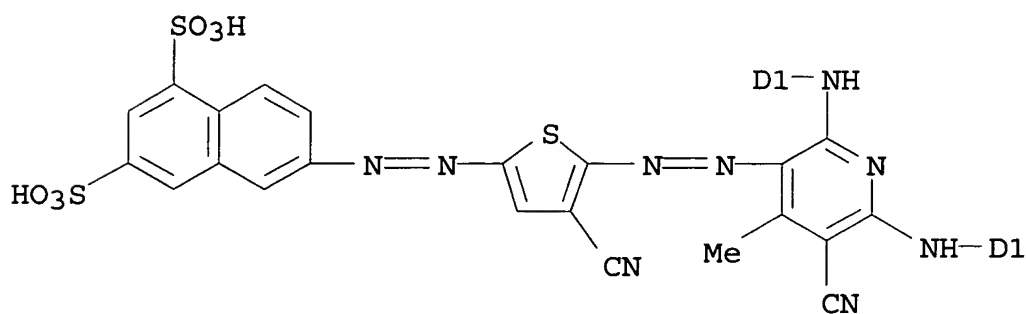
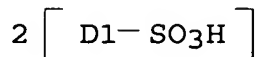
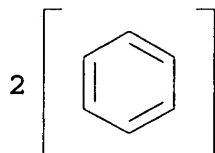
IT 675594-63-5

(dyes; jet-printing cartridges containing cellular polyurethane ink absorbents and black azo dye inks showing good **discharge** stability and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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PAGE 2-A

●4 Li

IC ICM B41J002-175
ICS B41J002-01; B41M005-00; C09D011-00
CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
ST jet printing ink cartridge polyurethane sponge; black azo dye jet
ink durability; polyurethane foam cartridge ink **discharge**
stability
IT Containers
(cartridges; jet-printing cartridges containing cellular
polyurethane ink absorbents and black azo dye inks showing
good **discharge** stability and durability)
IT Sponges (artificial)
(ink absorbents; jet-printing cartridges containing cellular
polyurethane ink absorbents and black azo dye inks showing
good **discharge** stability and durability)
IT Plastic foams
(ink absorbents; jet-printing cartridges containing cellular
polyurethane ink absorbents and black azo dye inks showing
good **discharge** stability and durability)
IT Absorbents
Azo dyes
(jet-printing cartridges containing cellular polyurethane ink
absorbents and black azo dye inks showing good
discharge stability and durability)
IT Inks
(jet-printing, water-thinned, black; jet-printing cartridges
containing cellular polyurethane ink absorbents and black azo
dye inks showing good **discharge** stability and durability)
IT Polyurethanes, uses
(sponges, ink absorbents; jet-printing cartridges containing
cellular polyurethane ink absorbents and black azo dye inks
showing good **discharge** stability and durability)
IT 64346-41-4 675594-63-5
(dyes; jet-printing cartridges containing cellular
polyurethane ink absorbents and black azo dye inks showing good
discharge stability and durability)

L12 ANSWER 19 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:402947 HCAPLUS
DOCUMENT NUMBER: 140:408360
TITLE: Storage-stable ink-jet black inks giving
prints with good durability and gradation

INVENTOR(S): Taguchi, Toshiki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 88 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|----------------|------|----------|-----------------|
| EP 1420051 | A1 | 20040519 | EP 2003-26580 |
| JP 2004182978 | A2 | 20040702 | JP 2003-386498 |
| US 2004154496 | A1 | 20040812 | US 2003-714945 |
| JP 2002-333790 | A | | |

2003

1118

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

2003

1117

2003

1118

PRIORITY APPLN. INFO.: JP 2002-333790 A

2002

1118

OTHER SOURCE(S): MARPAT 140:408360

AB The inks have a **discoloration** rate constant (kvis) of $\leq 5.0 \times 10^{-2}/h$ which is measured by using an ozone gas, and comprise an aqueous medium containing (1) an azo dye having a specific structure where a heterocyclic group is bonded to both of 2 N atoms, (2) a phthalocyanine dye having a specific structure, (3) an azo dye having a specific structure where a 5-membered heterocyclic group is bonded to one of 2 N atoms and a 6-membered 2-amino heterocyclic group is bonded to the other, or/and (4) a

bisazo dye constituted by a specific aromatic or heterocyclic group and an azo group.

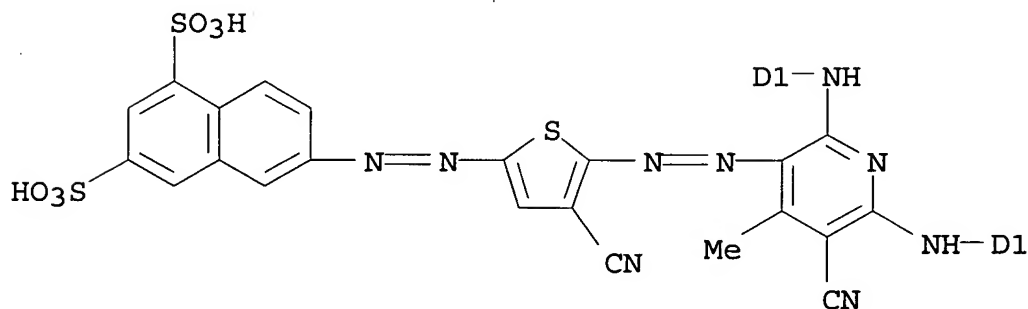
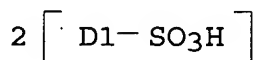
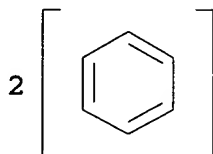
IT 675594-63-5 675594-64-6

(dyes; storage-stable ink-jet black inks giving prints with good durability and gradation)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

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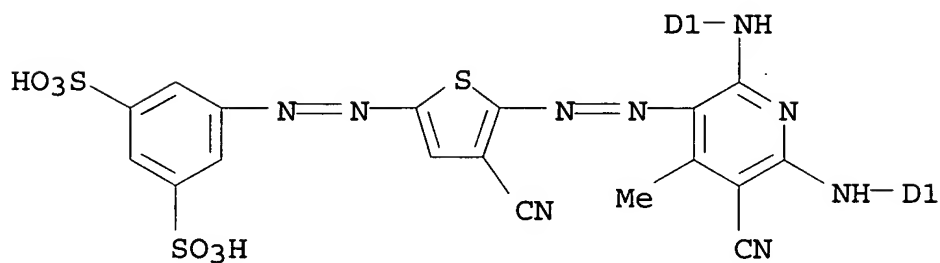
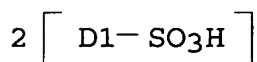
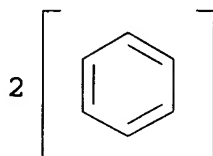
●4 Li

RN 675594-64-6 HCAPLUS

CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-

bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-,
tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

●4 Li

IC ICM C09D011-00

CC 42-12 (Coatings, Inks, and Related Products)

Section cross-reference(s): 41

IT 64346-41-4 473465-85-9 578729-33-6 586407-70-7

675594-63-5 675594-64-6

(dyes; storage-stable ink-jet black inks giving prints with
good durability and gradation)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L12 ANSWER 20 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:330393 HCAPLUS
DOCUMENT NUMBER: 140:340938
TITLE: Black ink-jet inks with good storage
stability
and **discharging** property
INVENTOR(S): Taguchi, Toshiki; Aono, Toshiaki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| DATE | PATENT NO. | KIND | DATE | APPLICATION NO. |
|-------|---------------|------|----------|-----------------|
| ----- | ----- | ---- | ----- | ----- |
| ----- | JP 2004124017 | A2 | 20040422 | JP 2002-293808 |

2002

1007

PRIORITY APPLN. INFO.: JP 2002-293808

2002

1007

OTHER SOURCE(S): MARPAT 140:340938

AB The inks contain ≥ 1 biocide and ≥ 1 black azo dye
dissolved and/or dispersed in an aqueous medium, wherein the dye
has a

λ_{max} of 500-700 nm and a half value width of ≥ 100 nm
in an absorption spectrum of a dilute solution normalized to an
absorbance of 1.0. The inks show a forced fading rate constant
(k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading
rate constant k_{vis} is determined by printing a black square
symbol of JIS

code 2223 in 48-point by using the black ink, measuring a
reflection d. (D_{vis}) of the printed symbol through a status A
filter to obtain an initial d., forcedly fading the printed
symbol

by an ozone fading tester capable of continuously generating 5
ppm

of ozone, and determining the time taken until D_{vis} reaches 80%
of the

initial d. The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

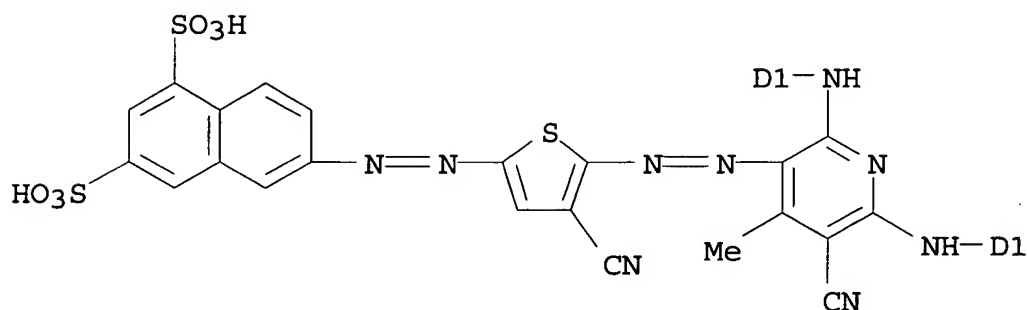
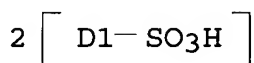
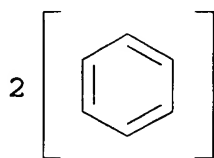
IT 675594-63-5 675594-64-6

(black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



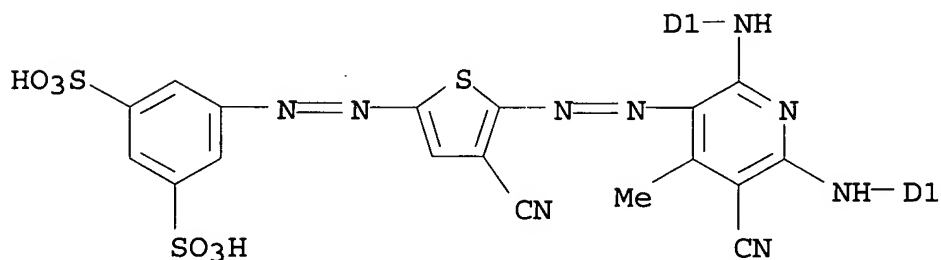
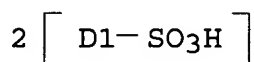
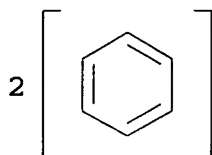
PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS

CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

●4 Li

IC ICM C09D011-00
 ICS B41J002-01; C09B031-147; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 Biocides
 (black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)
 IT Inks
 (jet-printing, water-thinned; black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

IT 122-99-6, Phenoxyethanol 73904-70-8, Proxel
(biocides; black azo dyes and biocides for water-thinned
ink-jet inks with good storage stability, **discharging**
property, and durability)
IT 64346-41-4 586407-70-7 **675594-63-5 675594-64-6**
(black azo dyes and biocides for water-thinned ink-jet inks
with good storage stability, **discharging** property,
and durability)

L12 ANSWER 21 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330392 HCAPLUS
DOCUMENT NUMBER: 140:340937
TITLE: Black ink-jet inks with good storage
stability
and **discharging** property
INVENTOR(S): Taguchi, Toshiki; Aono, Toshiaki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|----------------|------|----------|-----------------|
| ----- ----- | ---- | ----- | ----- |
| JP 2004124016 | A2 | 20040422 | JP 2002-293807 |

2002

1007

PRIORITY APPLN. INFO.: JP 2002-293807

2002

1007

OTHER SOURCE(S): MARPAT 140:340937

AB The inks contain $\leq 0.2\%$ of ≥ 1 biocide and ≥ 1
black azo dye dissolved and/or dispersed in an aqueous medium,
wherein
the dye has a λ_{max} of 500-700 nm and a half value width of
 ≥ 100 nm in an absorption spectrum of a dilute solution
normalized to an absorbance of 1.0. The inks show a forced
fading

rate constant (k_{vis}) of $\leq 5.0 \times 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square

symbol of JIS code 2223 in 48-point by using the black ink, measuring a reflection d . (D_{vis}) of the printed symbol through a status A filter to obtain an initial d ., forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until

D_{vis}

reaches 80% of the initial d . The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

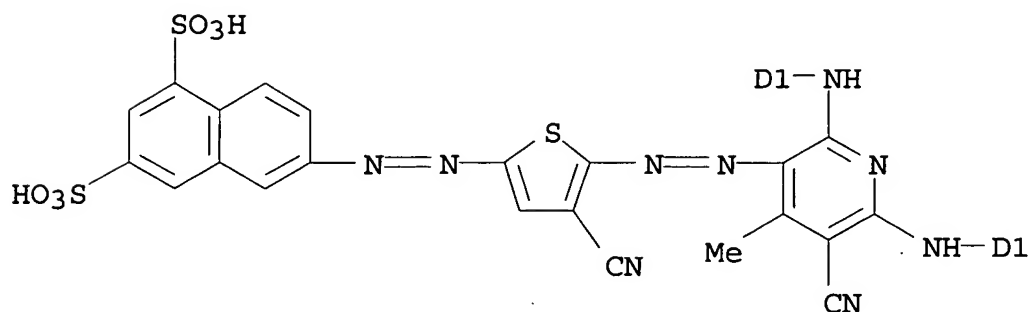
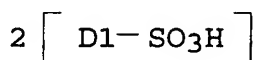
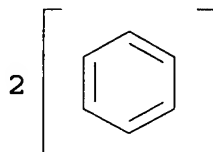
IT 675594-63-5 675594-64-6

(black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

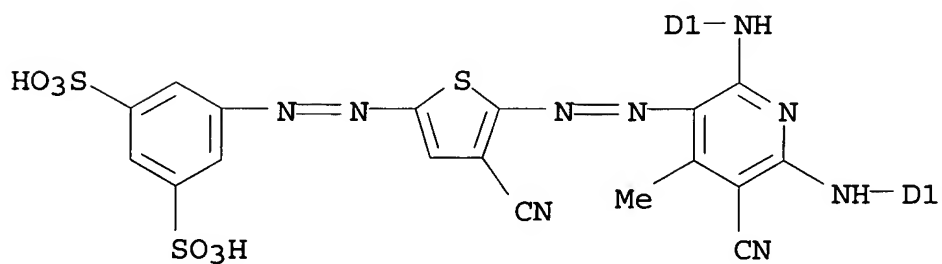
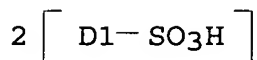
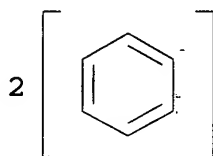


PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

●4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00; C09B031-143; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)

IT Azo dyes
Biocides
(black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

IT Inks
(jet-printing, water-thinned; black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

IT 122-99-6, Phenoxyethanol 73904-70-8, Proxel
(biocides; black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

IT 64346-41-4 586407-70-7 675594-63-5 675594-64-6
(black azo dyes and biocides for water-thinned ink-jet inks with good storage stability, **discharging** property, and durability)

L12 ANSWER 22 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330390 HCAPLUS
DOCUMENT NUMBER: 140:340936
TITLE: Black ink-jet inks with good
discharging property and durability
INVENTOR(S): Taguchi, Toshiki; Ozawa, Takashi
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 49 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|----------------|------|----------|-----------------|
| ----- ----- | ---- | ----- | ----- |
| JP 2004124012 | A2 | 20040422 | JP 2002-293684 |

2002

1007

PRIORITY APPLN. INFO.:

JP 2002-293684

2002

1007

OTHER SOURCE(S): MARPAT 140:340936

AB The inks contain an organic cyclic solvent (e.g., 2-pyrrolidone) bearing heteroatom or carbonyl group and ≥ 1 azo dye dissolved and/or dispersed in an aqueous medium, wherein the dye

has a

λ_{max} of 500-700 nm and a half value width of ≥ 100 nm in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0. The inks show a forced fading rate constant (k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square

symbol of JIS

code 2223 in 48-point by using the black ink, measuring a reflection d. (D_{vis}) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed

symbol

by an ozone fading tester capable of continuously generating 5

ppm

of ozone, and determining the time taken until D_{vis} reaches 80%

of the

initial d. The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

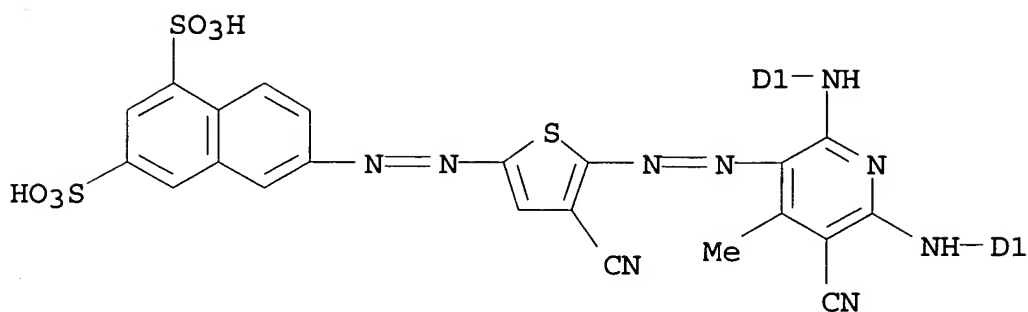
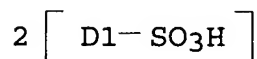
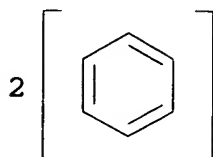
IT 675594-63-5

(black azo dyes and solvents for water-thinned ink-jet inks with good **discharging** property and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

- IC ICM C09D011-00
 ICS B41J002-01; B41M005-00; C09B031-143; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 (black azo dyes and solvents for water-thinned ink-jet inks
 with good **discharging** property and durability)
 IT Inks
 (jet-printing, water-thinned; black azo dyes and solvents for
 water-thinned ink-jet inks with good **discharging**
 property and durability)
 IT 64346-41-4 675594-63-5
 (black azo dyes and solvents for water-thinned ink-jet inks
 with good **discharging** property and durability)

IT 80-73-9, 1,3-Dimethyl-2-imidazolidinone 126-33-0, Sulfolane
616-45-5, 2-Pyrrolidone 616-47-7, N-Methylimidazole 872-50-4,
N-Methylpyrrolidone, uses
(solvent; black azo dyes and solvents for water-thinned
ink-jet
inks with good **discharging** property and durability)

L12 ANSWER 23 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330291 HCAPLUS
DOCUMENT NUMBER: 140:359057
TITLE: Black ink-jet inks and ink sets for thermal
ink-jet printing
INVENTOR(S): Taguchi, Toshiki; Tojo, Kaoru
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 47 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| ----- | ---- | ----- | ----- |
| ----- | | | |
| JP 2004123860 | A2 | 20040422 | JP 2002-288453 |

2002

1001

PRIORITY APPLN. INFO.: JP 2002-288453

2002

1001

OTHER SOURCE(S): MARPAT 140:359057

AB The inks, showing no deposition on a Pyrex glass container after
refluxing for 72 h, contain ≥ 1 black azo dye dissolved
and/or dispersed in an aqueous medium, wherein the dye has a
 λ_{max} of 500-700 nm and a half value width of ≥ 100 nm
in an absorption spectrum of a dilute solution normalized to an
absorbance of 1.0. The inks show a forced fading rate constant
(k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading
rate constant k_{vis} is determined by printing a black square
symbol of JIS
code 2223 in 48-point by using the black ink, measuring a

reflection d. (Dvis) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until Dvis reaches 80% of the

initial d. The inks are excellent in **discharging** property and durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

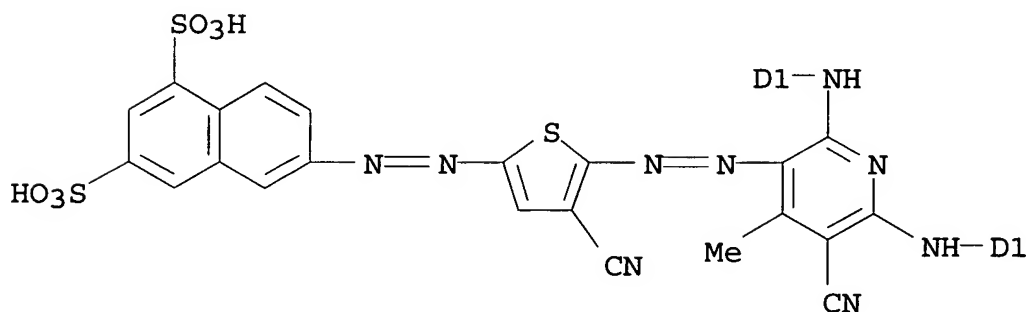
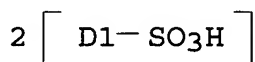
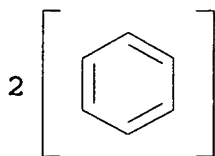
IT 675594-63-5 675594-64-6 681249-01-4
681249-02-5 681249-03-6

(black water-thinned ink-jet inks and ink sets with good **discharging** property and durability for thermal ink-jet printing)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



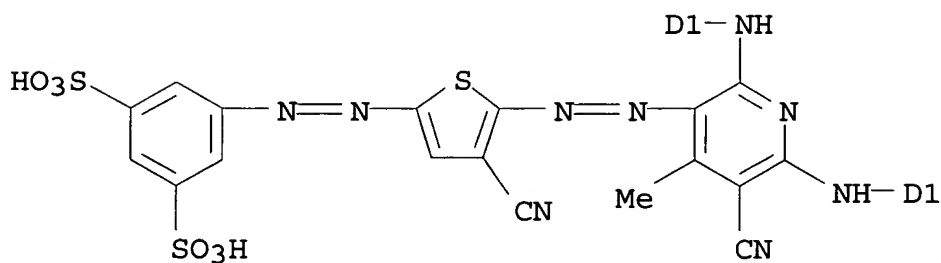
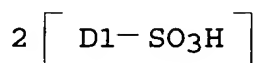
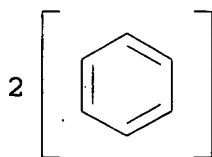
PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS

CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



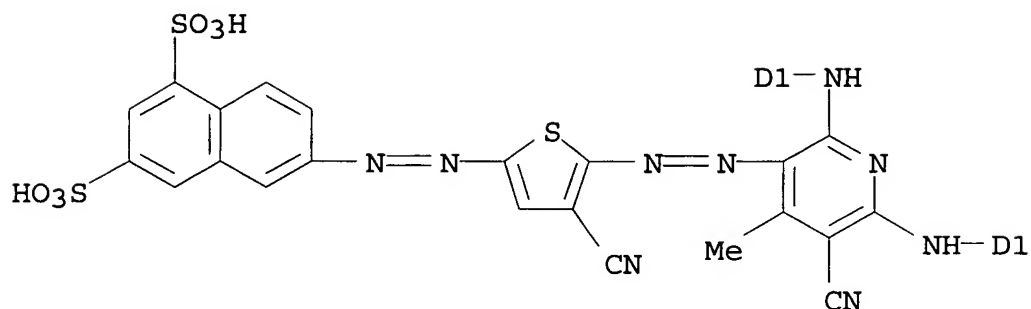
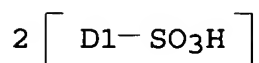
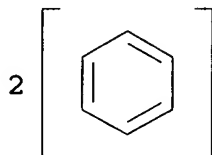
PAGE 2-A

●4 Li

RN 681249-01-4 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrapotassium salt (9CI) (CA INDEX NAME)

PAGE 1-A

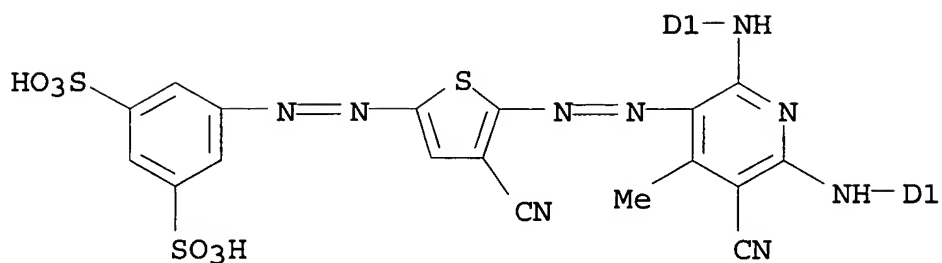
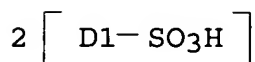
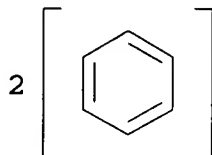


PAGE 2-A

● 4 K

RN 681249-02-5 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrapotassium salt (9CI) (CA INDEX NAME)

PAGE 1-A

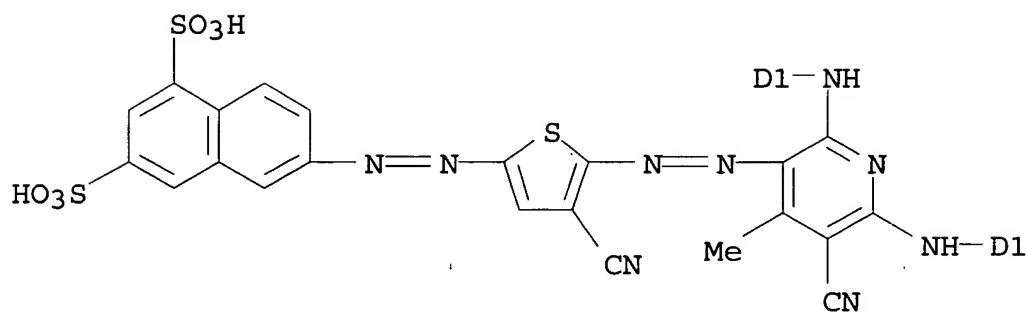
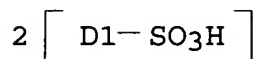
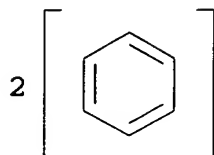


PAGE 2-A

● 4 K

RN 681249-03-6 HCAPLUS
 CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrasodium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Na

IC ICM C09D011-00
 ICS B41J002-01; C09B031-147; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 (black water-thinned ink-jet inks and ink sets with good
discharging property and durability for thermal ink-jet
 printing)
 IT Inks
 (jet-printing, water-thinned; black water-thinned ink-jet inks
 and ink sets with good **discharging** property and
 durability for thermal ink-jet printing)
 IT 6420-33-3 64346-41-4 586407-70-7 675594-63-5
 675594-64-6 681144-08-1 681249-01-4

681249-02-5 681249-03-6

(black water-thinned ink-jet inks and ink sets with good **discharging** property and durability for thermal ink-jet printing)

L12 ANSWER 24 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330288 HCAPLUS
DOCUMENT NUMBER: 140:359056
TITLE: Black ink-jet inks and ink sets for piezo
ink-jet printing
INVENTOR(S): Taguchi, Toshiki; Tojo, Kaoru
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 47 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| DATE | | | |
| ----- | ---- | ----- | ----- |
| ----- | | | |
| JP 2004123855 | A2 | 20040422 | JP 2002-288366 |

2002

1001

PRIORITY APPLN. INFO.: JP 2002-288366

2002

1001

OTHER SOURCE(S): MARPAT 140:359056

AB The inks, having a viscosity of ≤ 1.0 Pa·s at 0°, contain ≥ 1 black azo dye dissolved and/or dispersed in an aqueous medium, wherein the dye has a λ_{\max} of 500-700 nm and a half value width of ≥ 100 nm in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0. The inks show a forced fading rate constant (k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring a reflection d.

(Dvis) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until Dvis reaches 80% of the initial d.

The inks are excellent in **discharging** property and durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

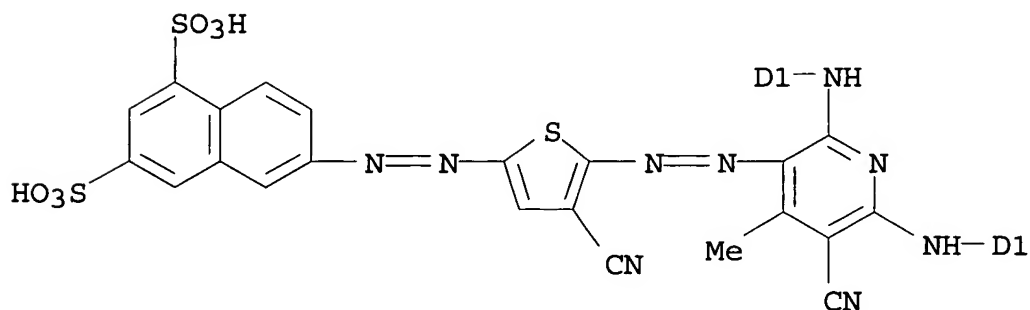
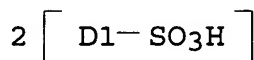
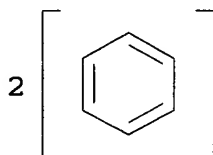
IT 675594-63-5 675594-64-6 681249-01-4
681249-02-5 681249-03-6

(black water-thinned ink-jet inks and ink sets with good **discharging** property and durability for piezo ink-jet printing)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

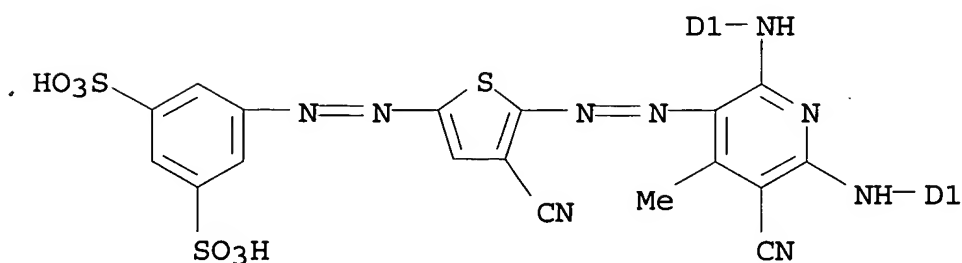
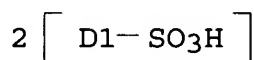
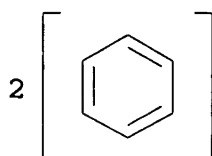


PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

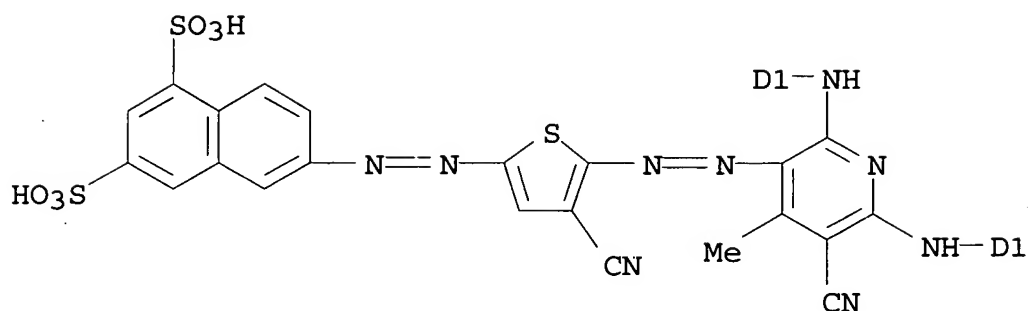
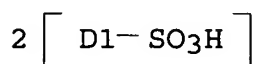
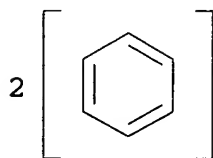


PAGE 2-A

●4 Li

RN 681249-01-4 HCAPLUS
 CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrapotassium salt (9CI) (CA INDEX NAME)

PAGE 1-A

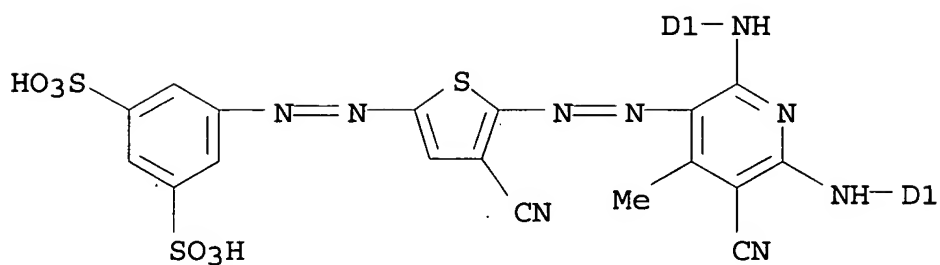
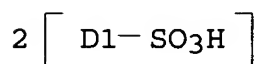
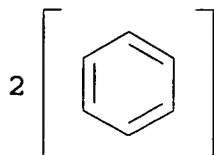


PAGE 2-A

● 4 K

RN 681249-02-5 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrapotassium salt (9CI) (CA INDEX NAME)

PAGE 1-A

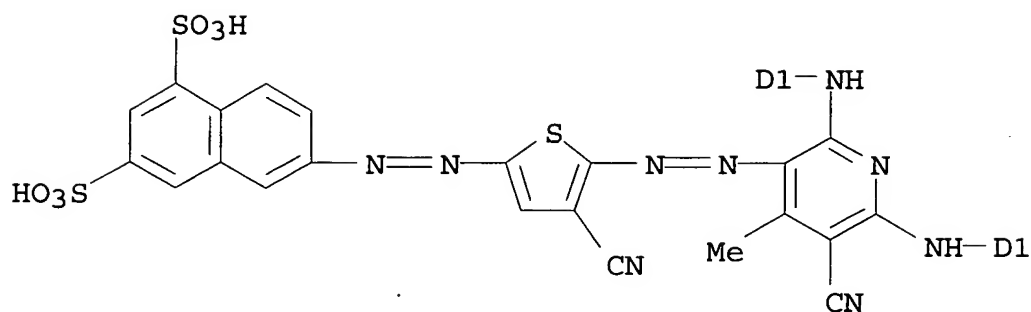
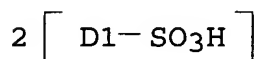
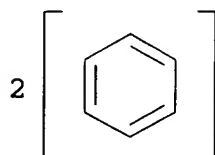


PAGE 2-A

● 4 K

RN 681249-03-6 HCAPLUS
 CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetrasodium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Na

IC ICM C09D011-00
 ICS B41J002-01; C09B031-143; C09B031-153
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 (black water-thinned ink-jet inks and ink sets with good
discharging property and durability for piezo ink-jet
 printing)
 IT Inks
 (jet-printing, water-thinned; black water-thinned ink-jet inks
 and ink sets with good **discharging** property and
 durability for piezo ink-jet printing)
 IT 6420-33-3 64346-41-4 586407-70-7 **675594-63-5**
675594-64-6 681144-08-1 **681249-01-4**

681249-02-5 681249-03-6

(black water-thinned ink-jet inks and ink sets with good **discharging** property and durability for piezo ink-jet printing)

L12 ANSWER 25 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330272 HCAPLUS
DOCUMENT NUMBER: 140:340933
TITLE: Black ink-jet inks with good **discharging** property and durability
INVENTOR(S): Taguchi, Toshiki; Ozawa, Takashi
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 47 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|----------------|------|----------|-----------------|
| ----- ----- | ---- | ----- | ----- |
| JP 2004123828 | A2 | 20040422 | JP 2002-287389 |

2002

0930

PRIORITY APPLN. INFO.: JP 2002-287389

2002

0930

OTHER SOURCE(S): MARPAT 140:340933

AB The inks contain ≥ 1 azo dye dissolved and/or dispersed in an aqueous medium, wherein the inks comprise $\leq 10\%$ of water-soluble

solvents in which the dye has a solubility of ≥ 10 g/100 g at 25°. The dye has a λ_{max} of 500-700 nm and a half value width of ≥ 100 nm in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0. The inks show a forced

fading rate constant (k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a

black square symbol of JIS code 2223 in 48-point by using the

black ink, measuring a reflection d. (Dvis) of the printed symbol through a status A filter to obtain an initial d., forcedly fading

the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken

until Dvis reaches 80% of the initial d. The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

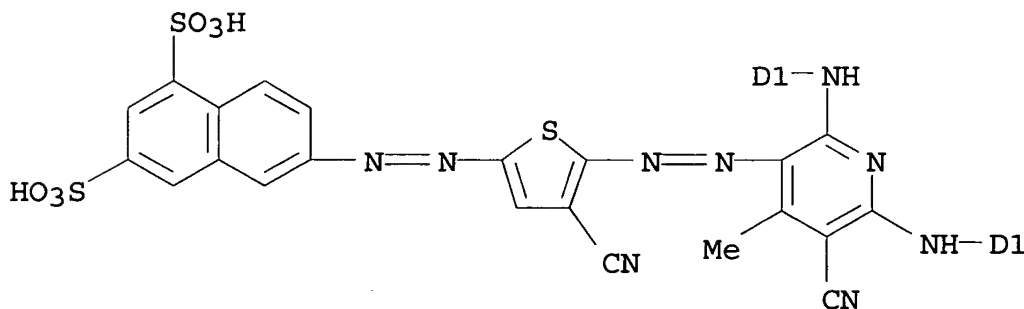
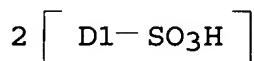
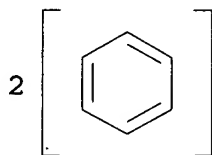
IT 675594-63-5 675594-64-6

(black azo dyes and solvents for water-thinned ink-jet inks with good **discharging** property and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



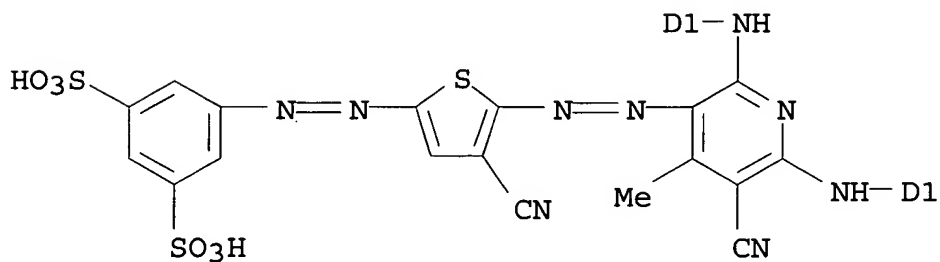
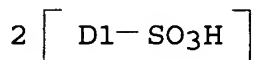
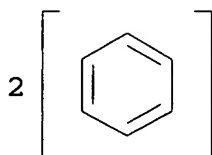
PAGE 2-A

●4 Li

RN 675594-64-6 HCAPLUS

CN 1,3-Benzenedisulfonic acid, 5-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

●4 Li

IC ICM C09D011-00

ICS B41J002-01; B41M005-00

CC 42-12 (Coatings, Inks, and Related Products)

IT Azo dyes

(black azo dyes and solvents for water-thinned ink-jet inks)

with good **discharging** property and durability)
IT Inks
(jet-printing, water-thinned; black azo dyes and solvents for
water-thinned ink-jet inks with good **discharging**
property and durability)
IT 64346-41-4 586407-70-7 675594-63-5 675594-64-6
(black azo dyes and solvents for water-thinned ink-jet inks
with good **discharging** property and durability)
IT 111-46-6, Diethylene glycol, uses 616-45-5, 2-Pyrrolidone
30136-13-1, Propylene glycol monopropyl ether
(solvent; black azo dyes and solvents for water-thinned
ink-jet
inks with good **discharging** property and durability)

L12 ANSWER 26 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:330270 HCAPLUS
DOCUMENT NUMBER: 140:340932
TITLE: Black ink-jet inks with good storage
stability, **discharging** property, and
durability
INVENTOR(S): Ogawa, Manabu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 46 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| DATE | PATENT NO. | KIND | DATE | APPLICATION NO. |
|------|---------------|------|----------|-----------------|
| | ----- | ---- | ----- | ----- |
| | ----- | | | |
| | JP 2004123824 | A2 | 20040422 | JP 2002-287253 |

2002

0930

PRIORITY APPLN. INFO.: JP 2002-287253

2002

0930

OTHER SOURCE(S): MARPAT 140:340932

AB The inks contain ≥ 1 water-soluble organic solvent having a vapor
pressure of ≤ 2000 Pa at 20° and ≥ 1 azo dye

dissolved and/or dispersed in an aqueous medium, wherein the dye has a

λ_{max} of 500-700 nm and a half value width of ≥ 100 nm in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0. The inks show a forced fading rate constant (k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square

symbol of JIS

code 2223 in 48-point by using the black ink, measuring a reflection d. (D_{vis}) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed

symbol

by an ozone fading tester capable of continuously generating 5

ppm

of ozone, and determining the time taken until D_{vis} reaches 80% of the

initial d. The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

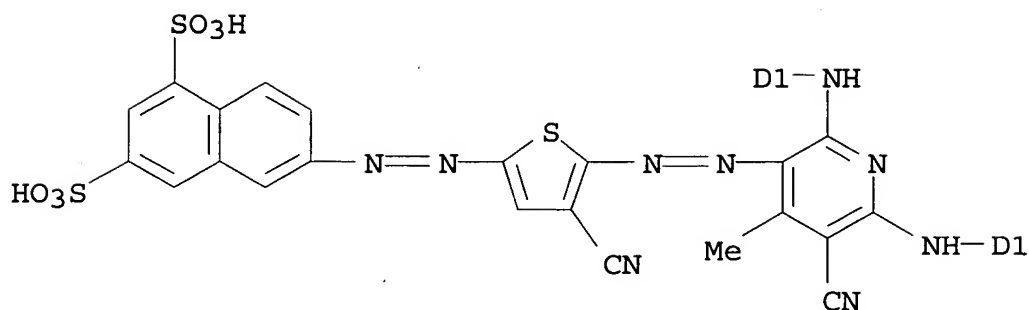
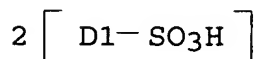
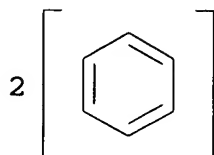
IT 675594-63-5

(black azo dyes and solvents for water-thinned ink-jet inks with good storage stability, **discharging** property and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

IC ICM C09D011-00
 ICS B41J002-01; B41M005-00
 CC 42-12 (Coatings, Inks, and Related Products)
 IT Azo dyes
 (black azo dyes and solvents for water-thinned ink-jet inks
 with good storage stability, **discharging** property and
 durability)
 IT Inks
 (jet-printing, water-thinned; black azo dyes and solvents for
 water-thinned ink-jet inks with good storage stability,
discharging property and durability)
 IT Alcohols, uses
 (solvent; black azo dyes and solvents for water-thinned
 ink-jet)

inks with good storage stability, **discharging**
property and durability)
IT 64346-41-4 **675594-63-5**
(black azo dyes and solvents for water-thinned ink-jet inks
with good storage stability, **discharging** property and
durability)
IT 56-81-5, Glycerol, uses 107-98-2, 1-Methoxy-2-propanol
111-46-6, Diethylene glycol, uses 112-34-5, Diethylene glycol
monobutyl ether
(solvent; black azo dyes and solvents for water-thinned
ink-jet
inks with good storage stability, **discharging**
property and durability)

L12 ANSWER 27 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:326448 HCAPLUS
DOCUMENT NUMBER: 140:340924
TITLE: Black ink-jet inks with good
discharging property and durability
INVENTOR(S): Taguchi, Toshiki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 49 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. |
|---------------|------|----------|-----------------|
| DATE | ---- | ----- | ----- |
| ----- | ---- | ----- | ----- |
| JP 2004123861 | A2 | 20040422 | JP 2002-288473 |

2002

1001

PRIORITY APPLN. INFO.: JP 2002-288473

2002

1001

OTHER SOURCE(S): MARPAT 140:340924
AB The inks contain ≥ 1 black azo dye dissolved and/or
dispersed in an aqueous medium, wherein the dye has a λ_{\max} of
500-700 nm and a half value width of ≥ 100 nm in an

absorption spectrum of a dilute solution normalized to an absorbance of

1.0. The inks show a forced fading rate constant (k_{vis}) of $\leq 5.0 \times 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square symbol of

JIS code

2223 in 48-point by using the black ink, measuring a reflection

d.

(D_{vis}) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until D_{vis} reaches 80% of the

initial d.

The inks are excellent in durability of images and image quality, such as lightfastness, heat-fastness, and ozone-fastness.

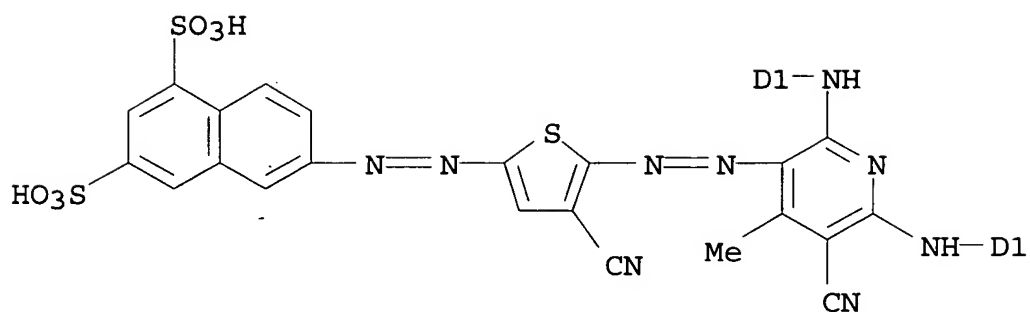
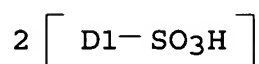
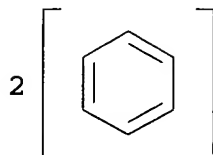
IT 675594-63-5 675594-64-6

(black azo dyes for water-thinned ink-jet inks with good **discharging** property and durability)

RN 675594-63-5 HCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 6-[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A

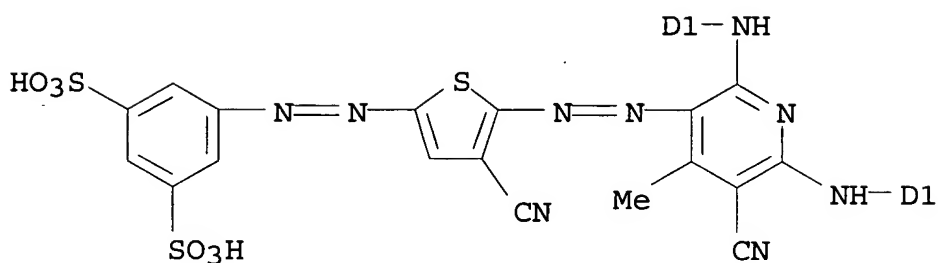
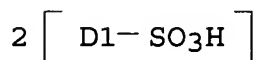
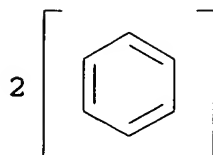


PAGE 2-A

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RN 675594-64-6 HCAPLUS
 CN 1,3-Benzenedisulfonic acid, 5-[[[4-cyano-5-[[5-cyano-4-methyl-2,6-bis[(sulfophenyl)amino]-3-pyridinyl]azo]-2-thienyl]azo]-, tetralithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

● 4 Li

- IC ICM C09D011-00
ICS B41J002-01; B41M005-00; C09B031-147; C09B031-153
CC 42-12 (Coatings, Inks, and Related Products)
IT Azo dyes
(black azo dyes for water-thinned ink-jet inks with good **discharging** property and durability)
IT Inks
(jet-printing, water-thinned; black azo dyes for water-thinned ink-jet inks with good **discharging** property and durability)
IT 64346-41-4 586407-70-7 675594-63-5 675594-64-6
(black azo dyes for water-thinned ink-jet inks with good **discharging** property and durability)

L12 ANSWER 28 OF 39 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:326447 HCAPLUS

USHA SHRESTHA EIC 1700 REM 4B28

DOCUMENT NUMBER: 140:340923
TITLE: Black ink-jet inks with good
discharging property and durability
INVENTOR(S): Ozawa, Takashi
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| DATE | PATENT NO. | KIND | DATE | APPLICATION NO. |
|-------|---------------|------|----------|-----------------|
| ----- | ----- | ---- | ----- | ----- |
| ----- | JP 2004123856 | A2 | 20040422 | JP 2002-288368 |

2002

1001

PRIORITY APPLN. INFO.:

JP 2002-288368

2002

1001

OTHER SOURCE(S): MARPAT 140:340923

AB The inks contain water-soluble organic solvent mixts. and ≥ 1 azo dye dissolved and/or dispersed in an aqueous medium, wherein the dye

has a specific solubility in the organic solvent mixts. The dye has a

λ_{max} of 500-700 nm and a half value width of ≥ 100 nm in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0. The inks show a forced fading rate constant (k_{vis}) of $\leq 5.0 + 10^{-2} \text{ h}^{-1}$, in which the forced fading rate constant k_{vis} is determined by printing a black square

symbol of JIS

code 2223 in 48-point by using the black ink, measuring a reflection d. (D_{vis}) of the printed symbol through a status A filter to obtain an initial d., forcedly fading the printed

symbol

by an ozone fading tester capable of continuously generating 5 ppm

of ozone, and determining the time taken until D_{vis} reaches 80% of the